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TEXAS STATE JOURNAL OF MEDICINE

Volume 49 Number 2 Austin, Texas, February, 1953

CONTENTS

	Page
PRESIDENT'S PAGE ..... preceding	53
EDITORIALS	
Why Have a Building?	53
Medical School Appropriations	54
"We the People . . ."	54
County Societies Must File Returns	55
Current Editorial Comment	
The Problem of Narcotic Addiction	56
ORIGINAL ARTICLES	
The Female Perineum: Its Structure, Function, and Preservation — *Raymond J. Pieri*	58
Induction of Labor — *J. R. Harris*	64
Analysis of Cesarean Sections in Austin, 1949-1951: With a Modification of the Low Flap Transverse Cesarean Section — *Milton Turner*	69
History of Circumcision: Introduction of a New Instrument — *Herman I. Kantor*	75
Review of the Physiologic-Pathologic Cervix — *Joe L. Cornelison*	78
Polyps and Papillomas of the Cervix Uteri — *John L. Goforth*	81
Intraepithelial Carcinoma of Cervix — *John J. Andujar*	86
Preliminary Observations on Retroperitoneal Lymphadenectomies — *John A. Wall and Hiram Arnold*	93
Functioning Ovarian Tumors — *Terrell Speed*	96
Masculinizing Tumors of the Ovary — *E. K. Blewett*	100
NEWS	
Coming Meetings and Clinics	107
Neuropsychiatric Meeting	108
Central Texas Spring Clinic	110
Texas Division, American Cancer Society	110
American College of Surgeons	110
LIBRARY SECTION	
Library Section Changed	110
Reference Service	110
Motion Pictures for Loan	111
Books Received in January	111
Book Notices	111
ORGANIZATION SECTION	
American Medical Association	
Film on Family Doctor Available	116
Exhibit Catalogue Available	116
Texas Medical Association	
Second Telephone Broadcast on Poliomyelitis	117
Executive Council Review	117
Related Groups To Meet During Annual Session	117
County Societies	118
AUXILIARY SECTION	
Texan on Southern Medical Auxiliary Board	120
County Auxiliaries	120
DEATHS	121

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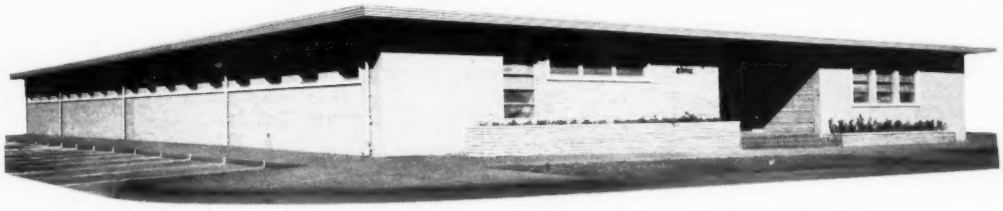

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President's Page

PUBLIC RELATIONS—INTERNAL AND EXTERNAL

Much of the work of our Association this year is being concentrated on what might be called better internal public relations. We are, in short, attempting to explain our own Association more fully to ourselves and thereby take advantage of the tremendous range of services and facilities available to every practicing doctor in the state. Too many doctors are still unaware of the many aids available to them through membership in the Texas Medical Association.

In line with this policy and all throughout the spring, meetings are planned in most of the medical districts aimed at providing a better understanding of the interest already accrued to us from our investment in our Association. The annual session in Houston will stress the same theme.

Usually, however, a better understanding of our own organization and its facilities will help in developing more fruitful external public relations, too. Without being able to tell other people about the Association and its services and without making use of those services in helping to build good will, the problem of creating pleasant relations with the public is made harder.

An example of how internal and external public relations can work together is the essay contest which the Woman's Auxiliary to the Texas Medical Association is sponsoring in the high schools of this state—the contest sponsored nationally by the Association of American Physicians and Surgeons on the subject of "Why the Private Practice of Medicine Furnishes This Country with the Finest Medical Care." This contest, one object of which is to give young people information about the problems of medical care and the free enterprise system before they become voters, is recognized as a highly important external public relations tool for the medical profession.

The internal public relations angle of the essay contest lies in the fact that physicians need to know (1) that the contest is being

held and is worth supporting and (2) that information for use by contestants can be obtained from the Association's Library and that other material helpful in getting across the same message not only to high school students but to their parents as well also may be obtained from the Library.

Under the guidance of the Board of Trustees, the Memorial Library's new home in Austin has every facility to fulfill a splendid future of service to the Texas medical profession and through it to the health care of the people. Much of the lack of use of the facilities comes from the fact that we do not know how thorough and how valuable they can be. Our Library will send material on loan free to us or to those we recommend. If material is available on a subject and is not in the Library, it will be borrowed and sent to us. We can request a complete bibliography on any medical subject. If we are confronted with a lay audience with which we want to discuss the medical care available in this country (tying in with the essay contest), the Library can furnish information for the talk or motion picture films to be shown.

Actually, all the Library staff asks is that we request the information we need. From there, they furnish everything. It is hard to see how this service can be improved.

Internal and external public relations have a definite bearing on each other, and the Library, which has the simple philosophy, "If it exists and can be obtained, we will get it for you," can be used to strengthen both. Be sure to remember it when you discuss the high school essay contest with your local auxiliary or when your young patients ask for help in the preparation of their essays.

T. C. Terrell

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WHY HAVE A BUILDING?

One of the major reasons for erecting a fireproof, commodious building for the Texas Medical Association was to house the Library and provide space for its expansion and development. This reason for a headquarters building was advanced by leaders in the Association years ago and was foremost in the minds of the Board of Trustees and Building Committee when the present structure on Lamar Boulevard in Austin was being planned and constructed.

With the building having been occupied for almost six months, it is only proper for members of the Association to wonder if the Library is any better off than it was before. Needless to tell those who have seen the modern structure which houses the Association's Memorial Library on its main floor is the fact that physically the Library is much better off. There are comfortable reading rooms and study cubicles for those who can come to the building in person. More important, there is ample stack space for books, periodicals, and reprints and adequate facilities for storing motion picture films and equipment. Too, there are comfortable offices and work rooms for the staff to catalogue material, keep it in repair, and prepare it for distribution throughout the state.

Another step forward which has been taken since the Library was moved to new quarters is the employment of a trained medical librarian. Miss Pauline Duffield, who received her library training at George Peabody College for Teachers in Nashville, Tenn., and completed an internship at the Tulane University School of Medicine Library and the Orleans Parish Medical Society Library in New Orleans under the direction of Miss Mary Louise Marshall, came to Texas from Baltimore, where she had been librarian of the Medical and Chirurgical Faculty of Maryland Library for six and one-half years. Miss Duffield and the other members of the Library staff are going through the material on hand, recataloguing and reclassifying it to make it more accessible, and evaluating it with a view to developing complete sets of the outstanding medical journals, a collection of

the latest monographs, an adequate reprint file, and a good variety of motion pictures for professional and lay audiences.

Beginning with this issue, the Library Section of the JOURNAL is being modified to consist regularly of a short article on the Library, a list of new books received, film annotations, and book notices. Once or twice a year, statistics and similar information will be published. It is hoped that this type of information will bring to members of the Association a better idea of the organization, services, and functions of the Library so that they will know better how its facilities can help them in the writing of papers, preparation of speeches, or brushing up on latest methods of diagnosis and treatment.

Suggestions from members of the Association about the Library and its section in the JOURNAL will be much appreciated. Still more welcome will be requests for motion picture films, individually-tailored packages on medical subjects, bibliographic lists, or the many other services which the Library is prepared to offer. The building is beautiful, yes, but its owners will not receive full benefit from it unless they become habitual users of the Library.

MEDICAL SCHOOL APPROPRIATIONS

Obtaining adequate financial support for the state medical schools and teaching hospitals associated with them is a matter of concern this year especially, to the physicians of Texas. A letter calling attention to the necessity of meeting the budget requests from the medical schools and pointing out the problems in carrying out teaching programs with the present facilities was sent from the Council on Medical Education and Hospitals of the Association to the members of the Fifty-Third Legislature in January.

Upon consideration of the facts, every physician in the state will see the wisdom of the budget requests of the University of Texas Medical Branch, Southwestern Medical School, Postgraduate School of Medicine, M. D. Anderson Hospital for Cancer Research, and School of Dentistry and will wish to support favorable consideration by the Legislature so that adequate appropriations will be assured.

The Council on Medical Education and Hospitals has reviewed the budget requests presented earlier by the Chancellor, the former chairman of the Board of Regents of the University, and the deans of the medical branches and found the requests reasonable, particularly in view of the increased program of service of each institution. In addition, the Council made known its desire to serve by meeting with the appropriations committees of the House and Senate to discuss the budget requests.

Only by appropriating the necessary public funds to provide a high standard of medical education and to carry on research in vital fields can good health for the state be assured. When given the opportunity, members of the Association should feel the responsibility to make known the feelings of the doctors of Texas on this subject.

"WE THE PEOPLE . . ."

Events of recent years climaxed by the first major change in federal administration in two decades have awakened Americans to trends in the nation's life and, if nothing else, have helped many to embark upon a thinking career. The thought process in the man of medicine appears to have been speeded up by some of these trends in fields related to medicine, and he is in a better position to become an effective citizen than ever before.

Because of the continual reference to creeping socialism, the American doctor has begun to think of the modern concept of socialism in its relation to other things besides socialized

EDITOR'S NOTE: *Some of the ideas expressed in this editorial appeared in "Three Challenges of the Future," J.A.M.A.* 151:212-213 *(Jan. 17) 1953 and in F. G. Clark and R. S. Rimanoczy's "What Can America Expect from the Republican Party?" Economic Facts of Life* 6:1-2 *(Jan.) 1953.*

medicine. He recognizes that the meaning of socialism has been changing from government *ownership* to government *regulation.* The desire to aid the sick, the aged, and the disabled still exists, but in a socialistic atmosphere; the attitude toward the individual and the method of giving assistance is different.

He sees another sign of our times in the aging of the population. Thanks to medical science and research, man lives longer than he used to; consequently, the problem of planning for security in later years is increasingly important and molds the philosophy of the aging person. It has been suggested that more and more we are likely to become an age-conscious society in which the conflict of interest between old age and youth will be evident not only in the economic and social realm but also at the polls. The solution can lie only in the development of a sense of social morality and individual responsibility, each group sympathetic with the rights and needs of the other.

A third trend evident to the doctor, closely related to the desire to assure minimum welfare for all and to the increasingly older makeup of the population, is the growth of interest in a health insurance program to provide adequate medical care for the latter years of life as well as for those of maximum productivity. The voluntary health insurance movement, mushrooming as it has in recent years, still abounds in unanswered problems which must be solved before it can be considered the final panacea.

Expounding as he may upon the evils of our time, the effects of the New Deal, and the actions of proponents of socialism in all of its phases, the thinking doctor must not forget that we Americans have had the kind of government we wanted; we got it by voting it in and voting to continue it, just as we supposedly have done away with it by voting its chief adherents out.

Those who voted for the new administration in Washington may think they know exactly what they voted for, and those who voted against it may think they know what they opposed. Nevertheless, the fact remains that the social and political philosophy of the new administration is still little more than a question mark, and the shape which it will take by and large will be decided by the American people. What we want most from life, the means which we develop individually or in private association or through local governments to achieve those goals, our opinions made known to lawmakers and administrators—these are the factors which ultimately will determine the philosophy of the current administration.

Ignorance, passivity, aloofness, stubborn opposition without presentation of practical alternatives, and failure to communicate opinions and reasons for them can obscure the values most cherished by an individual or group and can be responsible for permitting history to sweep past with little or no notice. Knowledge of the problems which exist, a determination to solve them intelligently and in a democratic fashion, and forward-looking action are the tools which physicians, like other citizens, can use to shape the future of this nation.

COUNTY SOCIETIES MUST FILE RETURNS

County medical societies affiliated with the Texas Medical Association which are incorporated under the laws of Texas are advised by the Association's legal counsel that each such county society must file a return with the United States Department of Internal Revenue annually, even though the society does not have to pay a tax. The form to be used is Form 990, which may be obtained from the nearest office of the Department of Internal Revenue. Societies which want help in filing their returns may write the Executive Secretary of the Association.

This may seem like just one more worry

to add to the personal income tax return, but observance of the law now may save trouble later.

CURRENT EDITORIAL COMMENT

THE PROBLEM OF NARCOTIC ADDICTION

Most of the physicians who treat narcotic addiction realize that the present system of narcotic control is not satisfactory. They further realize that at present, medicine, including psychiatry, has little to offer in the way of a cure for narcotic addiction.

More and more physicians are coming to realize that a confirmed addict is a much better citizen socially, morally, and economically when he is assured of a steady legal supply of opiates sufficient to keep him comfortable. It must be realized that narcotic addiction is only one of many symptomatic expressions of an underlying inadequate immature personality, and treatment directed solely towards the addiction is most frequently unsuccessful. If rarely one is able successfully to keep this type of patient free of narcotics, his psychopathy breaks out in some other symptom or set of symptoms that may be more socially unacceptable than the addiction. Furthermore, a person with a well integrated personality who becomes addicted as a result of a long, painful illness requiring opiates is easily removed from opiates, and the likelihood of this person relapsing is remote.

There is little if any evidence to support the prevalent opinion that opiates, taken in tolerated doses, over a long period cause any deleterious effect on either the physical or intellectual status of the person taking them.

This department of the JOURNAL *presents editorial comments on current items pertaining to the science, art, and practice of medicine, contributed by members of the Texas Medical Association and scientists closely associated with the medical profession of Texas. Invitation is hereby extended to any member of the Texas Medical Association to submit such discussions for this department. The discussions should not be more than 500 words in length.*

Light[1] and his co-workers were unable to detect any marked physical deterioration or impairment of physical fitness aside from the addiction per se in a series of cases of opium addiction studied during the administration of morphine. They concluded that the existence of considerable emaciation in certain cases was the result of the unhygienic and impoverished life of the addict rather than the direct effect of the drug.

Many addicts who were antisocial, alcoholic, or emotionally crippled before becoming addicted, after addiction became law-abiding citizens who were able to carry on in their community in a normal manner, particularly if assured of a continuing supply. Unfortunately, there are few addicts who can make such an arrangement for a continuing supply.

Alden Stevens[2] in a recent issue of *Harper's Magazine* has reviewed the whole problem of narcotic addiction and states that a rational narcotics program should be designed to accomplish the following:

1. Reduce the number of addicts sharply.
2. Prevent the making of new addicts, especially among our youth.
3. Eliminate crime caused by the need for drugs.
4. Take the fantastic profit out of the narcotics traffic.
5. Discover who the addicts are and how many there are.
6. Provide for research and education in the field of addiction.

Such a program could be rapidly established at little cost by allowing addicts to register with some government agency such as the United States Public Health Service where their addiction could be confirmed, and then they would be referred to either a private physician or local clinic. Here, drugs would be dispensed to them at cost with no profit accruing to the private physician or the pharmacist dispensing the drugs.

This program would not reduce the number of addicts immediately, but it is reasonable to believe that not as many new addicts would

appear since it is commonly known that peddlers of drugs entice young people, frequently teen-agers, to start the use of drugs so that the peddlers will have more customers. Under this program new addicts would soon be lost to the free clinics. Many addicts become peddlers to provide funds to support their habit. These also would be lost to the free clinics.

It is the lack of drugs rather than the drugs themselves that drive addicts to crime; therefore, crime caused by the need for money to buy drugs would cease since the drugs would be available at a price the addicts could afford. In fact, most addicts at present who have a sure source of supply are extremely careful not to come in conflict with the law in order that they will not be incarcerated and thereby separated from their supply.

Illegal narcotic traffic to a large extent would disappear since it could not compete with unadulterated drugs provided free or at cost by the clinics.

With a large number of addicts registered, a reservoir of research material would be available for study. The present federal narcotic hospitals would be relieved of the ever-present pressure to admit addicts and could devote their time more profitably to research and education. The money now devoted to the narcotic bureau could be used to support the clinics and provide for education and research into the problem.

Considerable thought and planning must be devoted to such a program before its inauguration. Many questions would have to be answered from trial and error and mistakes and abuses should be expected in the beginning. Nevertheless, with experience there is no doubt that a much more rational, humane, and successful method of narcotic control could be perfected than presently exists.

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2. Stevens, A.: Make Dope Legal, Harper's Magazine *205*:40-47 (Nov.) 1952.

JOHN L. OTTO, M. D.,
Department of Neuropsychiatry,
University of Texas Medical Branch,
Galveston, Texas.

NEW TYPE SURGICAL NEEDLE

A new type surgical needle used in suturing incisions of the mitral valve of the heart is described by Dr. Gerald H. Pratt, New York, in an article in the January 10 issue of *The Journal of the American Medical Association.*

The needle, which is a ski-shaped type, is made with the base of the ski as a long square, instead of a flat surface and permits the needle to be held securely at any angle and makes suturing of the heart valve less hazardous.

"The use of such a needle for other deep suturing is also feasible," Dr. Pratt states. "Other parts of the heart, the deep lying vessels in the chest or abdomen, the bronchi, the pelvic bowel and the bladder at times all present suture problems in which such a needle proves valuable."

BIRTH RATE INCREASES

More babies were born in the United States during 1952 than in any previous year in the nation's history, according to a report by statisticians of the Metropolitan Life Insurance Company. The total number of births for 1952 is estimated at 3,875,000, and the year's birth rate was approximately 25 per 1,000 population. The past year was the sixth in succession in which the number of births exceeded 3,500,000, the report states.

The statisticians point out further that "Infant mortality was probably the lowest ever experienced in any year. The infant mortality rate was a little over 28 per 1,000 live births in 1952, the third successive year in which the rate has been less than 30. The reduction in infant mortality over the past ten years has brought about a saving of 50,000 infant lives in 1952 alone."

HORMONE DRUGS IN HEMOLYTIC ANEMIA

Treatment of acquired hemolytic anemia has progressed recently by use of ACTH and cortisone in combination with other forms of therapy, it is reported in the December 20 issue of *The Journal of the American Medical Association.*

Although the basic cause of acquired hemolytic anemia is obscure, the disease seems to afflict more females than males. The doctors who made the report tell of a study of 19 persons afflicted with the disease who were given the drugs in addition to other forms of treatment. Several of the patients had remissions after treatment with blood transfusions and the hormones and no relapse occurred. Improvement was noted in other cases although removal of the spleen was required in some instances.

Laboratory Training in Communicable Diseases

The Communicable Disease Center of the Public Health Service has announced a schedule of laboratory refresher training courses to be offered from January through December, 1953. The courses will cover bacterial, parasitic, virus, and venereal diseases, tuberculosis and rabies. Information can be obtained from the Laboratory Training Services, Communicable Disease Center, United States Public Health Service, Box 185, Chamblee, Ga.

ORIGINAL ARTICLES

THE FEMALE PERINEUM

Its Structure, Function, and Preservation

RAYMOND J. PIERI, M.D., F.A.C.S., Syracuse, New York

DURING the seventh week of fetal development the distal ends of the urinary and genital canals become united with the terminal portion of the alimentary canal to form a common cavity, the cloaca. The lateral borders of the external orifice of the cloaca are visible as marginal lips. At the end of the eighth week two genital folds appear, one on the medial aspect of each marginal lip of the cloacal orifice. The cloaca begins now to divide into a ventral, or urogenital, sinus, and a dorsal, or anal portion. Two weeks later, in the female, the marginal lips of the cloaca may be recognized as the labia majora, and the genital folds as the labia minora. Between them lies the vaginal vestibule. A median raphe extends posteriorly from the vestibule to that remnant of the cloacal orifice which has now become the anus. This median raphe traverses that wedge-shaped septum, now called the "obstetric perineum" or "perineal body," which separates the vagina from the rectum.

The obstetric perineum or perineal body thus represents only an anatomic landmark, since the term "perineum" includes not only the perineal body but all those soft parts, both muscle and fascia, which occupy the inferior aperture or outlet of the bony pelvis.

Familiarity with these elements lends to the gynecologist and obstetrician adroitness and dexterity in his preservation or repair of these structures.

Childbirth is usually considered a normal process. Yet in nearly every delivery the tissues of the female perineum are subjected to variable degrees of trauma, which lead to impairment of their function and invite subsequent invalidism of the mother.

The purpose of this presentation is twofold, to emphasize the functions of these structures, especially during labor, and to plead the importance of their obstetric preservation. This necessitates first a consideration of their structural or anatomic relationships.

From the Department of Obstetrics, State University of New York. Read before the Section on Obstetrics and Gynecology, Texas Medical Association, Annual Session, Dallas, May 7, 1952.

STRUCTURE

The outlet of the bony pelvis, seen from below (fig. 1a), presents two commonly recognized landmarks, the ischial tuberosities. Between their widest points an imaginary line, *AB*, corresponds to the bisischial diameter of the outlet and forms the common base of two triangles, *M* and *N*. The bisischial line *AB* traverses the perineum just anterior to the anus. The apex of the anterior, or urogenital, triangle is the subpubic ligament; the apex of the posterior, or rectal, triangle is the sacrococcygeal joint.

The relations between these landmarks and the female perineum can best be perceived (fig. 1b) by visualizing the bony outlet in the human figure. The external genitalia are seen to occupy the anterior triangle, while the anal orifice appears in the posterior triangle.

Removal of the skin and superficial fascia of both triangles (fig. 1c) reveals that the bisischial diameter *AB* corresponds somewhat closely with an anatomic division between the anterior (urogenital) triangle and the posterior (rectal) triangle. In the anterior triangle a rather dense layer of the deep superficial fascia (Colles' fascia) is encountered. Along line *AB*, this fuses with the posterior limits of a deeper double plane of fascia, the so-called triangular ligament (or urogenital diaphragm).

In the posterior triangle there is first a layer of superficial fat. Removal of this discloses the ischiorectal fossae, the external rectal sphincter, the anococcygeal body, and the anal fascia. The anal fascia covers the inferior aspect of the levator muscles (pelvic diaphragm).

Careful dissection of the anterior triangle shows it to be composed of two flat compartments on each side of the midline (vagina). The most superficial (inferior) of these is opened by reflecting Colles' fascia laterally (fig. 1d). This exposes its contents, the ischiocavernosus, the bulbocavernosus (constrictor cunni), and the superficial transverse perineal muscles. Medially the latter contribute fibers to the central tendon of the perineum, or perineal body.

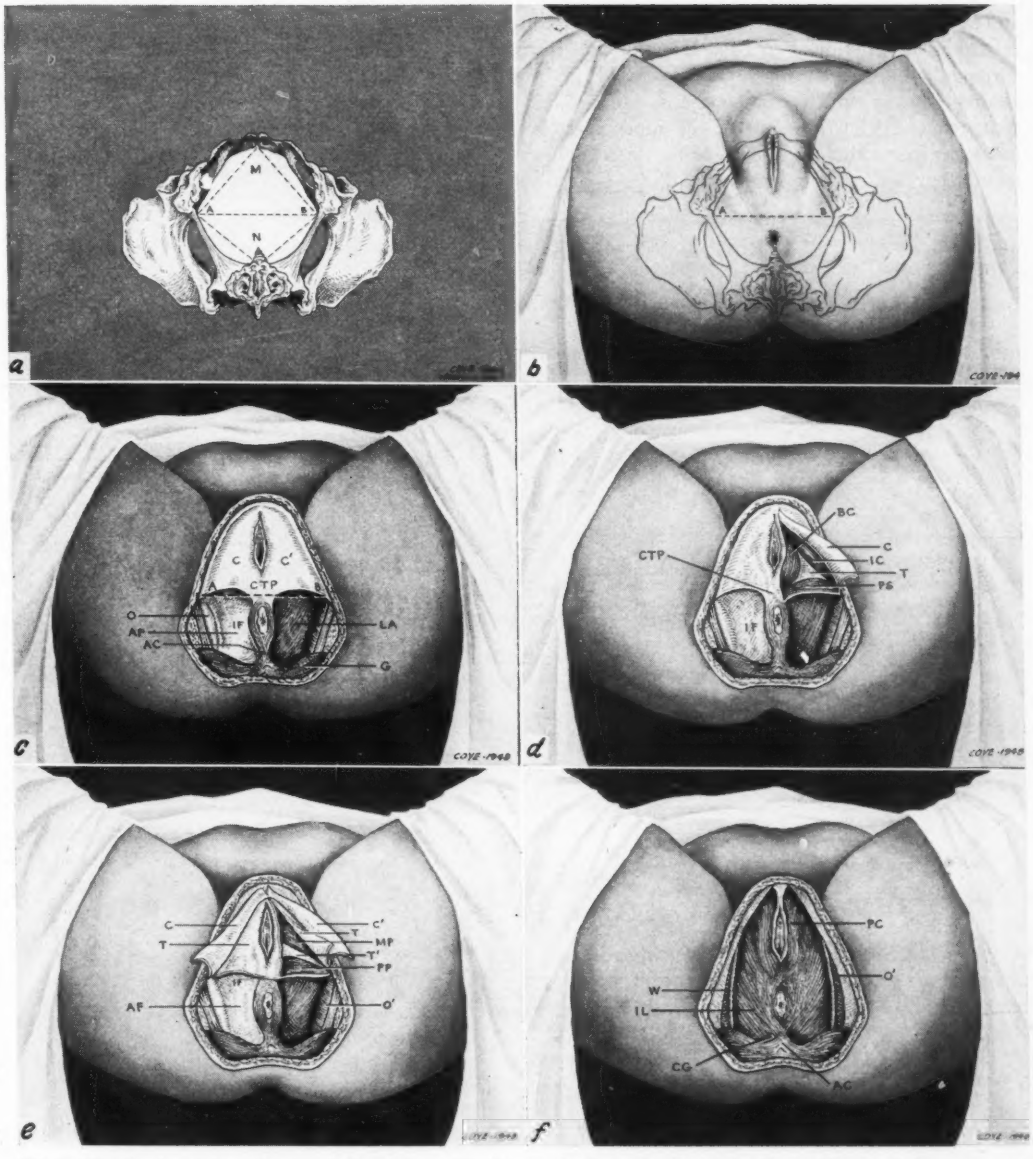

FIG. 1a. The female pelvic outlet viewed from below. *AB*, the bisischial diameter; *M*, the urogenital triangle; *N*, the anal triangle.

b. The relation of the bony pelvis to the female perineum.

c. Dissection of the female perineum, with integument and superficial fascia removed. The fat has been removed from the ischiorectal fossae. *CC'*, Colles' fascia; *CTP*, central tendon of perineum (perineal body); *IF*, ischiorectal fossa; *O*, obturator internus fascia; *AF*, anal fascia; *LA*, left levator ani muscle with anal fascia removed. The anal fascia is the inferior layer of levator fascia. *AC*, anococcygeal body; *G*, gluteus muscle.

d. Dissection of the urogenital triangle. *C*, Colles' fascia reflected to show contents of the left superficial perineal compartment; *IC*, ischiocavernosus; *BC*, bulbocavernosus; *PS*, superficial transverse perineal muscle; *T*, inferior fascia (floor) of deep compartment (urogenital diaphragm, urogenital trigon, or triangular ligament).

e. Deeper dissection of the urogenital triangle. *CC'*, Colles' fascia reflected on each side and the contents of the superficial compartment removed; *T*, the inferior fascia of the urogenital diaphragm. On the left this has been reflected to show the muscles of the deep compartment. *MP*, sphincter muscle of the membranous urethra; *PP*, deep transverse perineal muscle; *T'*, superior fascia (roof) of the urogenital diaphragm. In the anal triangle the obturator internus fascia has been removed to show *O'*, the underlying fibers of the obturator internus.

f. The pelvic diaphragm (levatores ani) seen from below. The inferior (anal) fascia has been removed. *O'*, obturator internus; *W*, the "white line"; *PC*, pubococcygeus fibers; *IL*, ileococcygeus fibers; *CG*, coccygeus muscle; *AC*, anococcygeal body (see text).

The "roof" of the superficial compartment is discerned as the inferior of two flat layers of thin fascia (triangular ligament, urogenital diaphragm, or urogenital trigon) which enclose the so-called "deep" compartment. Thus the roof of the superficial compartment forms also the "floor" of the deep compartment. Removal of the structures of the superficial compartment and opening the inferior (floor) of the two fascial layers of the urogenital diaphragm reveals the contents of the deep compartment (fig. 1e) interposed between them. Two muscles may here be identified, the sphincter muscle of the membranous urethra and the deep transverse perineal muscle. The latter muscle is also inserted medially into the perineal

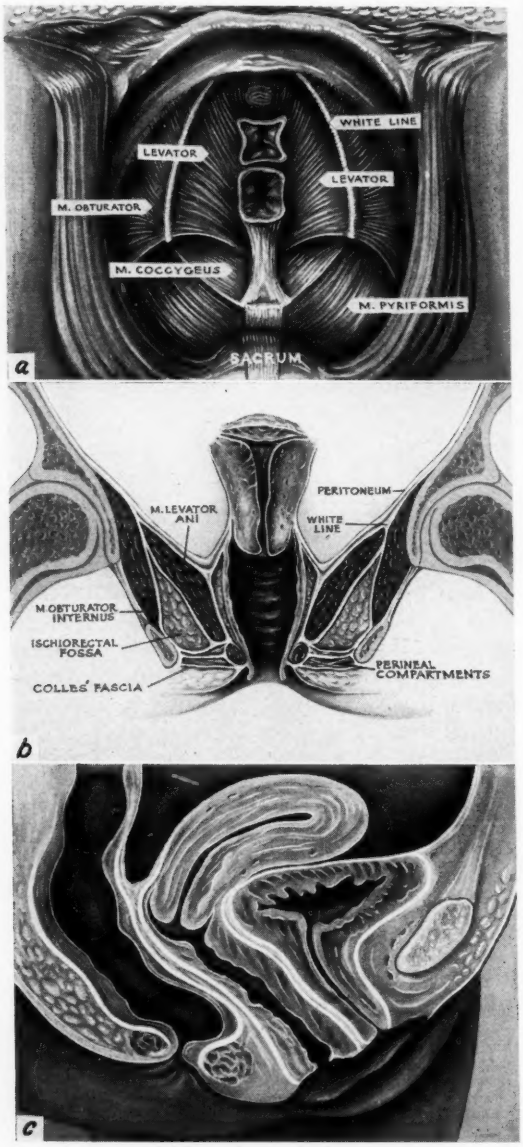

FIG. 2a. The interior of the female pelvis seen from above. The viscera and fascia have been removed.

b. Coronal section through the female pelvis (diagrammatic).

c. Sagittal section through the female pelvis to show the four chief layers of fascia (see text).

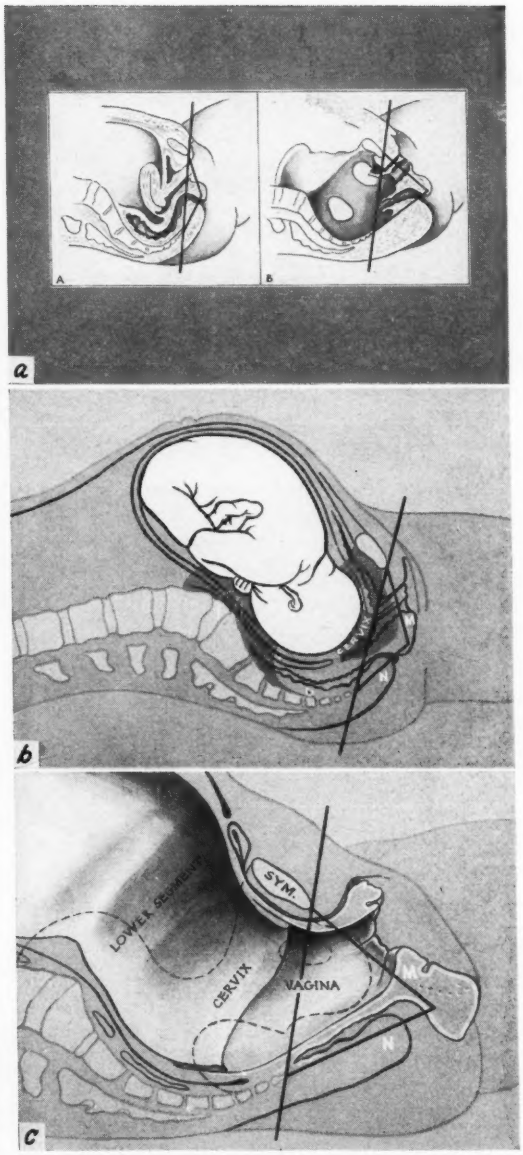

FIG. 3a. The female perineum on sagittal section; *A*, in the nonpregnant state; *B*, late in pregnancy. Note the difference in their levels.

b. The three main levels of soft part resistance encountered during labor; the cervix; *N*, structures of the posterior triangle; *M*, structures of the anterior triangle.

c. The birth canal following delivery (sagittal section).

body. As previously indicated, the roof of the deep perineal compartment is the superior of the two fascial layers of the urogenital diaphragm. Posteriorly, along the bisischial line, they fuse with each other and with Colles' fascia.

The ischiorectal fossae (fig. 1e) thus potentially extend from the posterior triangle anteriorly between the superior fascia of the urogenital triangle and the inferior levator (anal) fascia. Actually, however, these fossae do not extend forward beyond the bisischial line.

The anal fascia invests the inferior surface of the paired levator ani muscles. The superior surface of the levators is likewise covered by fascia. These two fascial layers collectively are referred to as the pelvic fascia. The levatores ani form the pelvic diaphragm.

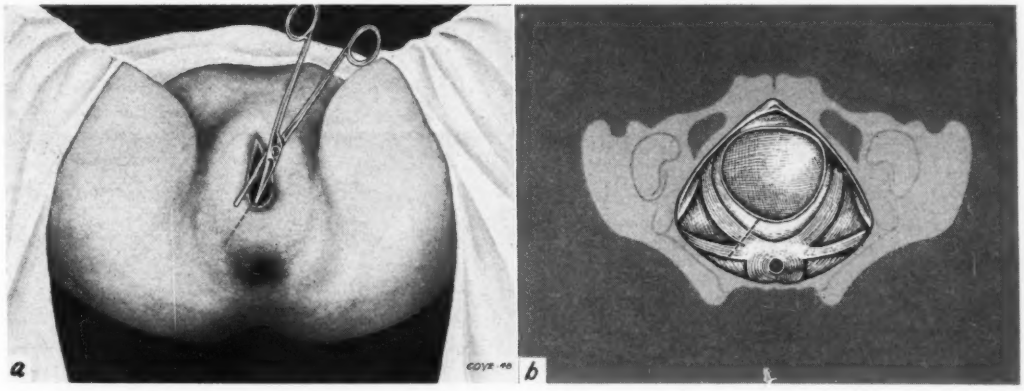

FIG. 4a. Right mediolateral episiotomy. Caput is visible. There is perineal bulging.

b. Diagram to show the structures involved in the average episiotomy incision.

Removing the various structures of which the urogenital diaphragm is composed, and dissecting the anal fascia off the inferior surface of the levatores ani, reveals this most important paired muscle, the pelvic diaphragm (fig. 1f). Anatomically two parts of each levator are recognized. The medial portion (pubococcygeus) passes backward from its pubic origin lateral to the vagina. Some fibers mingle with longitudinal fibers of the vaginal wall and with the bulbocavernosus muscle. Others decussate in the perineal body. The main portion proceeds to mingle somewhat with the external sphincter, but chiefly with the anococcygeal body itself.

The lateral portion (ileococcygeus) of the levator arises from the "white line" of the tendinous arch (see later). Most of these fibers pass downward and backward. Some join their homologues of the opposite side in the obstetric perineum, others terminate in the anococcygeal body, and still others insert into the lateral margins of the coccyx. Most posterior to the levator fibers the coccygeus and pyriformis muscles complete the closure of the aperture of the pelvic outlet.

The pelvic floor thus resembles a trough, with a V-shaped conformation, sloping downward and forward from its closed beginning (anococcygeal body) to its anterior opening (vagina). Aside from the primary function of support to the pelvic viscera this arrangement of the soft tissues (fascia and muscle) of the female perineum is of vast importance in the mechanism of labor. When the pelvic floor is seen from above (fig. 2a), it becomes manifest how, during childbirth, the presenting part is guided through the birth canal along the line of least resistance via the vagina and pelvic outlet into the outside world.

Laterally, on each side of the levatores, both superior and inferior layers of the pelvic fascia (levator fascia) fuse with each other and with the fascia covering the inner surface of the obturator internus. The ridge thus formed is the arcus tendineous of the levatores ani, called by anatomists the "white line" because of its unmistakable appearance. The white line of fascia extends posteriorly and downward on each side to the ischial spines, where it terminates about 5 cm. below the plane of the pelvic inlet.

Slightly below and medial to the white line (fig. 2b) the superior levator fascia thickens to form a bandlike base or ridge of fascia, the tela endopelvina, or main sheet of visceral fascia, which gives off four main layers. One layer (fig. 2c) invests the bladder, a second lies between bladder and the noncontractile segment of the uterus above, and between bladder and vagina below. A third layer lies between vagina and rectum, while the fourth is posterior to the rectum.

FUNCTION

The proper support and normal function of the pelvic viscera depend upon the integrity of their re-

spective fascial investments. All skeletal muscles are likewise sheathed in fibro-elastic tissue (fascia). Normal elasticity exists only within certain limits. Any such structure which sustains damage to its fascial support soon weakens. In the case of a muscle the unsupported fibers become separated. It herniates. Just as the body depends upon the integrity of the bony skeleton for support, so do all skeletal muscles and most viscera depend upon the integrity of their fasciae.

During late pregnancy, through hormonal and vascular influences, the entire perineum (fig. 3a) projects several centimeters below its level in the nonpregnant state. Although there is also a general in-

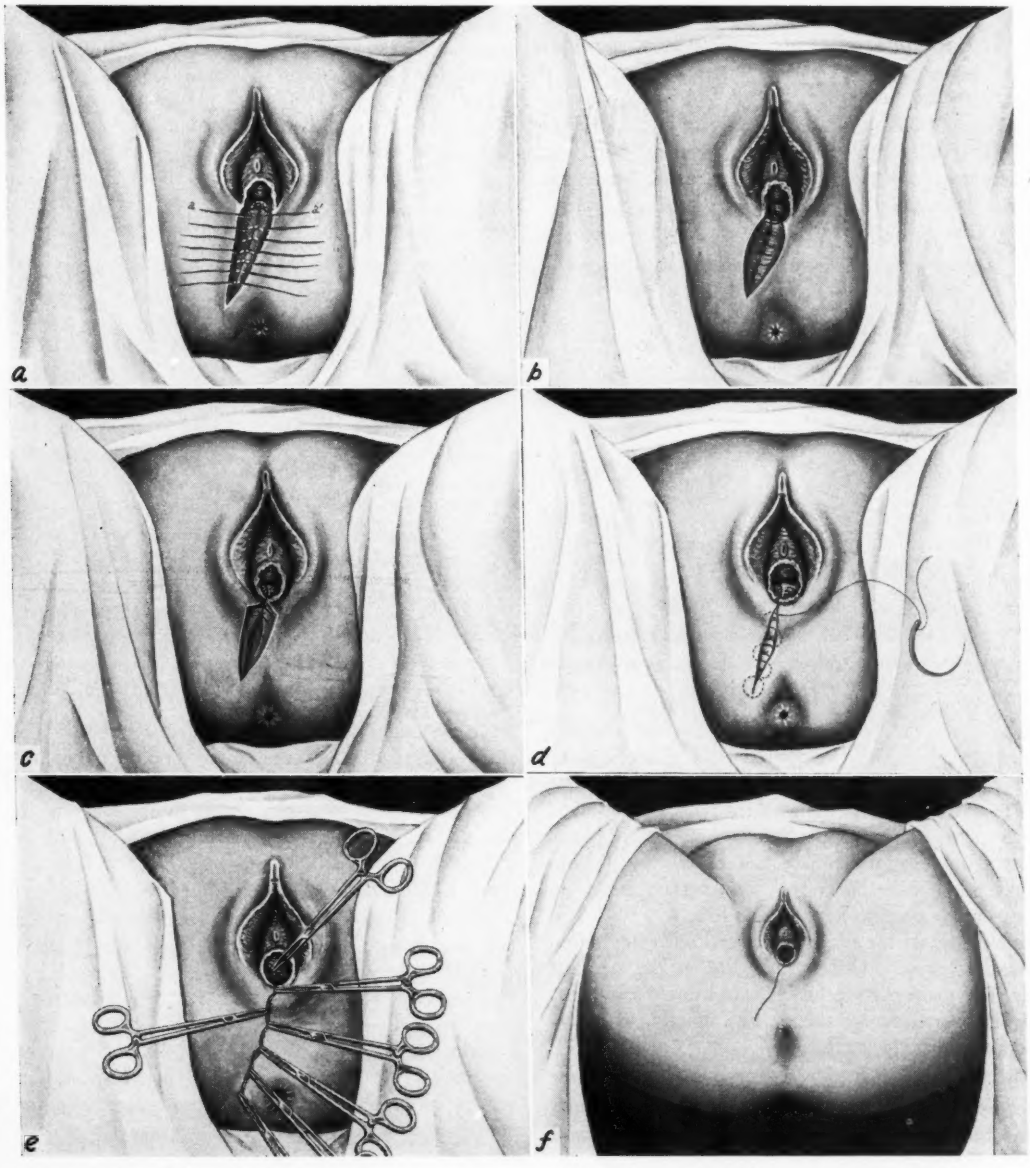

FIG. 5. Repair of episiotomy.
a. The first suture, *aa'*, is passed widely around the upper angle.
b. The first layer of sutures completed.
c. The second layer of sutures includes the deep superficial fascia; the "crown stitch" has been tied and the hymeneal ring restored.
d. A continuous subcuticular suture coaptates the skin.
e. The everted edges of the incision are sealed with Allis clamps.
f. The Allis clamps have been removed, leaving a fine linear scar (see text).

crease in soft-part elasticity, this is seldom sufficient to allow the birth of a full term infant without some structural damage accompanying the accidents and trauma associated with delivery.

With the onset of labor the powers of the uteroabdominal contractions are expended chiefly in dilating and stretching both fascia and muscle. The baby is forced like a wedge through three main levels of resistance (fig. 3b), the cervix, the levatores (posterior or anal triangle), and the structures of the urogenital triangle. There results a profound stretching and distortion of the birth canal (fig. 3c). Lacerations are common accidents.

The anatomic sequelae of these accidents are loss of visceral support, descensus, sagging of the bladder and urethra, cystocele and rectocele, and gaping of the orifices of both triangles. Most of these result from single or multiple tears in one or more of the various layers of muscle or fascia. Even overstretching beyond the normal elasticity predisposes to later loss of support. Often the damage is recognized in the form of visible tears, but not infrequently it is concealed beneath an apparently intact vaginal mucosa, which is noted for its redundance.

PRESERVATION

Most of the tears of soft tissues occur late in the second stage of labor, after the presenting part has reached the pelvic floor. Episiotomy, properly timed and executed, usually creates sufficient additional space to prevent most lacerations of the perineum. It has for its objectives the relief of excessive strain upon the structures of both triangles, the substitution of a clean incision for ragged tears during delivery, and, following childbirth, the preservation of structure by a neat repair.

Episiotomy is not an innovation. It was performed by Ould in 1742. Many teachers have since observed its indications and contraindications, but the minutiae of anatomy and technique have been for the most part disregarded.

Normally delivery is not attempted until the presenting part is on the levators, with evidence of pressure (bulging) on the perineum, accompanied by distortion of the anus and the appearance of "caput." Following the usual preparation for delivery the bladder is catheterized and the perineum gently "ironed out" manually, accompanied by the liberal use of neutral liquid soap. It is important to avoid overstretching. This causes future loss of muscle tone and damage to fascia. It is likewise important to avoid too rapid manual dilatation. This favors laceration.

The site of incision is usually mediolateral, right or left, chiefly because accidental extension of the cut in either case avoids the sphincter. Sharp scissors are necessary (fig. 4a).

The length of the incision determines which structures are severed by the episiotomy. At times, in pathologic cases, even the ischiorectal fossa may be involved. Ordinarily, however (fig. 4b), the obstetrician severs the vaginal mucosa, skin, Colles' fascia, the bulbocavernosus, the transversus perinei, the urogenital septum, and the median fibers of the pubococcygeus portion of the levator. Following delivery any persistent bleeding from severed vessels is controlled with Allis clamps. No attempt at suturing is advised until the placenta is delivered, after which a vaginal pack is inserted to keep the field clear during the repair.

Ordinarily inspection of the incision (fig. 5a) does not reveal details of individual anatomic structures, except for muscle tissue and Colles' fascia. The latter is usually found retracted under the integument and superficial panniculus.

The following technique of repair* avoids the passing of sutures through either mucosa or skin. All sutures are fine chromic No. 000, tied only securely enough to secure coaptation. The first stitch *aa'* (fig. 5a), is submucous, and is passed widely around the upper angle of the incision. This is to bring together any fibers of muscle or fascia which invisibly may have become separated beneath the mucosa. Neglect to observe this precaution favors subsequent rectocele if such an occult separation exists. The first layer consists of interrupted sutures (fig. 5b). Allis clamps are used as retractors.

The second layer of sutures includes Colles' fascia and is likewise interrupted. Its important feature is the "crown stitch." This coaptates the retracted ends of the severed bulbocavernosus muscle and restores the hymeneal ring (fig. 5c). To accomplish this the needle must be inserted obliquely upward in the base of the labia minora in order to grasp the constrictor fibers. In some cases, to prevent gaping of the vagina, two such sutures may be required.

The skin is closed by a continuous subcuticular suture (fig. 5d) on a fine needle, beginning at the lower angle of the out. As the integument is thus coaptated Allis clamps are applied gently to its everted edges (fig. 5e). A dozen such clamps are ready for use in each case. These are permitted to remain clamped for only a few moments, during which the vaginal pack is removed, any clots expressed, and preparations made for transfer of the patient to her bed.

Apposition of the cut edges of the skin in this manner makes adherence quite effective, results in a fine linear scar (fig. 5f), and seems to reduce appreciably

*Routine of the obstetric division of the Medical Center, State University of New York.

the degree of postoperative discomfort. Routine perineal care is exercised following delivery. Early ambulation is encouraged. Hospitalization of normal patients postpartum averages five days.

SUMMARY

A review of the structure of the female perineum is presented to assist the obstetric attendant in an understanding of its importance. A brief outline of the function of these parts is included. It is emphasized that nearly every delivery is accompanied by trauma, and often followed by permanent damage. Episiotomy is suggested as a means of avoiding most of the severe lacerations of the perineal structures. A simple and effective technique of repair is included.

304-306 Medical Arts Building.

INDUCTION OF LABOR

J. R. HARRIS, JR., M.D., Lubbock, Texas

IN presenting the subject, induction of labor, it must be admitted from the outset that such a procedure is highly controversial. Every obstetrician is torn between the two extremes: previous conservative training, exemplified by the abhorrence of meddlesome obstetrics; and clinical experience, indicative of significant improvement over our heritage of technique. In part, the advances of the past two decades have depended upon a greater understanding of the physiology of labor and the knowledge of when to take an active part in this process, rather than the "watch and wait" type of midwifery.

Elective induction of labor at term is a procedure which has gained popularity in the past few years, as evidenced by numerous reports in the current literature. The lack of a more widespread acceptance of this useful method has been the responsibility of two groups: (1) the extreme conservatives, who never consider induction of labor, and (2) the radical group, who induce all of their patients purely as a matter of convenience to themselves. In my own practice I have divorced the former group and have no intention of entering into the latter. As is true in so many fields of human endeavor, including medicine, the "middle-of-the-road" would appear more attractive than the extremes.

OPPOSITION TO INDUCTION

In general, opposition to induction of labor falls into three categories: (1) there are no absolute indications for induction, (2) there is a possibility that induction may create risks to both mother and child and that the obstetrician will be held responsible, and (3) in the event of failure of the method to terminate the pregnancy, there is considerable psychic trauma and disappointment for the patient. The answers to these criticisms are not easy, but let us consider them in order and try to evaluate them.

It is true there are no absolute indications for induction of labor. It is also true that there are many times and circumstances which make the termination of any given pregnancy desirable. One of the most important of these is the Rh-negative multipara beginning to show sensitization to the Rh factor and the desirability of interruption of the pregnancy before far-advanced erythroblastosis is established in the fetus. In my opinion, induction of labor is by far a more conservative procedure than any type of cesarean section. The next indication to be considered is that of the patient who lives a long distance from the hospital and her obstetrician. This is particularly true in rural areas, such as the western part of our state, where primipara and multipara alike must of necessity travel a hundred miles or more for prenatal care and delivery. Since the estimated date of confinement is such a variable thing it is impractical for these women to change their residence or to be hospitalized for several weeks in the anticipation of spontaneous labor. A prime candidate for induction of labor is the multipara who gives the history of extremely short labors, or previous precipitate deliveries. The amount of anxiety and apprehension of these women over the repetition of an unattended delivery cannot be discounted as trivial. These women welcome induction of labor as a solution to their problem. The next indication would be the toxemias and other complications of the prenatal period which do not respond to conservative therapy, or in true eclampsia after the convulsions are controlled and the general condition is within reasonable limits. Likewise, some patients with partial placenta praevia and those with the history of habitual intrauterine fetal death may frequently be handled more conservatively by induction of labor rather than cesarean section.

Read before the Section on Obstetrics and Gynecology, Texas Medical Association, Annual Session, Dallas, May 6, 1952.

Naturally, other unusual circumstances will come to mind, but these are enough to indicate the trend in current thinking. There are two conditions, however, that I feel are not indications for induction and are important enough to merit mention. In my opinion, so-called "post-maturity" is not a rational diagnosis nor an indication for induction. Many times induction of labor has been instituted for this condition, and after a long, hard labor a baby is delivered weighing less than 2,500 Gm. In this case, of course, it is not nature who has erred, but the obstetrician. Conversely, many times first-stage inertia is confused with "false labor" and the opportunity for active interference with pregnancy is overlooked. The other situation which is frequently used as an indication for induction is the convenience for the obstetrician. As summer and vacation-time approach the number of inductions increases in the average hospital. This indication is hardly worthy of discussion before a group of ethical obstetricians. Routine induction of labor is mentioned only to be condemned as not in the best interests of either the patient or the medical profession.

In considering the objection that induction may create risks for both the mother and the child for which the obstetrician may be held responsible, one must recognize several fundamental facts. Spontaneous labor is certainly not completely devoid of risk; nevertheless, the fact that the obstetrician did not institute the actual labor does not relieve him of responsibility for the ultimate outcome of that labor. It is one of the purposes of this paper to attempt to determine whether or not induction of labor will increase the risk to either the mother or the child, and if so, to what degree. Since there are many methods commonly in use to induce labor, there certainly should be a method of choice which is both efficient and yet increases the risks little or none. The proper selection of patients for any procedure is always of greates. importance in calculating the risk, and this is particularly true in the selection of patients for induction of labor. These latter two considerations will be taken up more in detail in their proper order. Greenhill, who has the gift of expressing himself in editorial style, made the following summation of induction of labor: "Elective induction of labor, when performed at the *proper* time by one who knows how, carries NO risk."

Finally, the objection of psychic trauma and disappointment to the patient in the event of failure of induction of labor to terminate a given pregnancy is a real objection and a problem. In my opinion, the best solution to this problem is honesty, reticence on the part of the physician to make exaggerated claims for the procedure, and a clear understanding on the part of the patient as to what is being done and why. The patient and her family should be taken into complete confidence prior to hospitalization and the problem fully discussed; the decision made will then be a joint one. Many times a five minute discussion, in complete honesty and simple language, will prevent hours of defensive argument with a hostile family group.

INDICATION AND CONTRAINDICATION

Although the indications for induction of labor may be somewhat ill-defined, the contraindications are clear. Except for an occasional extreme emergency, the patients in the following groups are not considered as candidates for induction: (1) long, rigid cervix, (2) malpresentation, (3) disproportion, (4) obstruction to the birth canal, (5) lack of engagement of the presenting part, (6) total placenta praevia, and (7) suspected presence of the umbilical cord ahead of the presenting part. A complete survey of the exact conditions should be made by sterile vaginal examination rather than rectal examination prior to any type of induction of labor. This latter point cannot be overemphasized.

In selecting patients for elective induction of labor the following criteria are necessary: (1) the pregnancy at term, labor imminent, and prognosis good, (2) no cephalopelvic disproportion, (3) a cooperative patient, (4) cephalic presentation, with the head at or below the spines, and (5) a "favorable" cervix. This latter point is one of extreme importance. Although it is possible to force a uterus unprepared for labor to perform its function, it is one of the surest ways of walking into grave trouble and remorse. A cervix to be considered "favorable" should be soft, at least 50 per cent effaced, and 1 or 2 cm. dilated. Once the above criteria are found to be present, the experienced obstetrician can institute labor by his own method of choice with the knowledge that his action will not increase the incidence of dystocia or any other obstetric emergency over that found in labors which commence spontaneously.

METHOD

Once the decision to induce labor has been made, the obstetrician is faced with the problem of selecting a method which is efficient and will simulate or preferably stimulate normal physiology. At no time should an effort be made to "rush" the labor. It should proceed in an orderly manner and supportive measures should be instituted, as indicated, exactly as in any other labor.

Methods to initiate labor fall into the two general categories: without the use of oxytocics and with the

use of oxytocics. The former group, which is the less efficient, will be considered first:

Medical induction by the use of various combinations and dosages of castor oil, enemas, quinine, calcium, and other transiently popular drugs and procedures. This method is both innoxious and inefficient. It is my belief that few, if any, labors are actually induced by this method. It is more rational to believe that an early unrecognized labor is accelerated rather than instituted.

Surgical induction by simple amniotomy. This is a popular procedure and almost always successful. There are two distinct disadvantages, however, and these should be taken into consideration. There is an appreciable latent period between the rupture of the membranes and the beginning of labor. This may vary from a few minutes to a few hours, and in isolated uncorrected cases to a few days. This latent period gives rise to disappointment and distress to the patient and great discomfiture to the attending physician, who can anticipate a prompt clamor from the patient's relatives for him to "do something." The more important feature of this latent period is the likelihood of infection, which increases hourly. It is generally accepted that amniotomy should be done by "stripping" the membranes as high as possible and leaving the forewaters intact.

The second group consists of all methods using oxytocics before delivery. It would seem appropriate at this point to make a short comment about Pituitrin and related drugs. Pituitrin is one of the best, most efficient, and helpful drugs available to modern medicine. At the same time it is the one most often misunderstood, misused, and maligned. The history of the meteoric rise in popularity of Pituitrin in 1909, its fall from grace in the 1920's, and reference to it as, "the most heinous of obstetric sins," to its slow, painful rise again in the past decade, makes interesting and instructive reading. Everyone interested in the subject should read Norman Herzig's review of the American literature on Pituitrin. Induction using oxytocics may be classified thus:

Medical induction by the use of some form of pituitary substance, either Pituitrin or Pitocin. This is usually given intramuscularly in minute doses at regular intervals of from fifteen to thirty minutes. There are two major objections to this method: (1) the great variation in the rate of absorption of the drug by different patients and (2) the necessity of depending upon the already overburdened nursing personnel for the execution of a timed procedure. There is a high percentage of failure with this method, which in turn too frequently results in the conclusion that induction of labor has failed and cesarean section is now indicated.

Surgical induction by amniotomy followed by the intramuscular use of pituitary substance. This is a good method and was used exclusively by me from 1942 to 1950. However, the disadvantages to the intramuscular use of Pituitrin remains. In addition, as will be borne out by my statistics, there is an appreciable latent period before labor starts and the length of labor is somewhat longer than with the method now in use.

Surgical induction by amniotomy followed by the intravenous use of dilute solutions of Pitocin. Labor instituted by this method appears to be safer and more physiologic than any method described to date. The latent period is minimal, the onset gradual, and the intensity of the contractions can be controlled with the greatest ease by regulation of the rate of flow of the solution. It has the distinct advantage that the drug may be stopped instantly should some untoward event make this desirable, and the total dosage of the drug is kept to a minimum. Although various dilutions of the drug are recommended by different authors, the end result is essentially the same. It has been my custom to use 1 ampoule of Pitocin to each liter of 5 per cent glucose, and the rate of flow is from 20 to 40 drops per minute depending upon the individual patient response. Few patients required the use of the entire liter of solution, the majority taking from 300 to 400 cc., to carry labor to its conclusion. As soon as the contractions are regular and well established the solution is discontinued. A few patients did require additional stimulation, but this was uncommon.

Recent literature includes several articles describing the use of ergot and ergot-like preparations for induction of labor, both with and without the use of amniotomy. These methods were purposefully not included in the previous description of techniques for the reason that I believe that these drugs are unsuited for the purpose, dangerous prior to delivery, and dem-

TABLE 1.—*Percentage of Induced Labors in 2,500 Consecutive Deliveries.*

Year	Total Deliveries	Induced Labor No.	Induced Labor %
1945 (partial)	153	27	17.7
1946	326	51	15.9
1947	325	48	14.7
1948	369	65	17.6
1949	393	57	14.5
1950	404	82	20.2*
1951	430	94	21.8*
1952 (partial)	100	16	16.0
	2,500	440	17.6

*The increased percentage of inductions after the adoption of the new technique is probably due to enthusiasm over the improved results. A correction of this tendency is noted in 1952.

onstrate a disregard on the part of their advocates for the pharmacologic action of the drugs and the normal physiology of labor.

PERSONAL SERIES

For the sake of brevity a review of the statistics from the literature is not given, but a short summary of my experience is included in the accompanying tables.

TABLE 2.—*Gravidity of 2,500 Patients.*

Gravida	Not Induced	Induced
1	1,080	82
2	536	110
3	260	96
4 or more	184	152
	2,060	440

Attention is called to the fact that whereas 45 per cent of the "grand multipara," para 4 or more, were induced to begin labor, only 7 per cent of the primiparas were considered as candidates for induction for one reason or another (table 2). The majority of the multiparas either lived long distances from the hospital or had previous precipitate deliveries.

TABLE 3.—*Length of Labor in 2,500 Cases.*

	Gravida	Hours of Labor 1-6	6-12	12-18	18 or more
Labor Not Induced	1	116	404	465	95
	2	190	211	109	26
	3	105	108	40	7
	4 or more	82	94	6	2
		493 (24%)	817 (39%)	620 (30%)	130 (7%)
Labor Induced	1	18	41	17	6
	2	46	48	12	4
	3	41	40	9	6
	4 or more	91	51	10	0
		196 (44%)	180 (41%)	48 (11%)	16 (4%)

In comparison of the spontaneous labor group with the induction group (table 3), one sees that 63 per cent of the former group delivered in the first twelve hours as compared with 85 per cent of the latter; 7 per cent of the spontaneous group took eighteen hours or longer, as compared with 4 per cent of the induced group. In general it may be concluded from this series that induction gives the promise of a slightly shorter labor in the majority of cases.

TABLE 4.—*Effect of Intramuscular and Intravenous Pitocin on Length of Labor.*

Pitocin	Hours of Labor 1-6	6-12	12-18	18 or More
Intramuscular	103 (41%)	102 (41%)	31 (13%)	12 (5%)
Intravenous	93 (48%)	78 (40%)	17 (9%)	4 (3%)

The difference between the groups receiving Pitocin intramuscularly and those receiving it intravenously is not marked as far as the end result is concerned (table 4): 82 per cent of the intramuscular group finished labor within twelve hours, whereas 88 per cent of the intravenous group finished within that time; 5 per cent of the first group took eighteen hours or more, as compared to 3 per cent of the latter group.

TABLE 5.—*Effect of Pitocin on Latent Period.*

Pitocin	Hours of Latency 0-1	1-2	2 or more
Intramuscular	31 (12%)	98 (39%)	119 (49%)
Intravenous	104 (54%)	78 (40%)	10 (6%)

It is admitted that the shortening of the latent period from the time induction is started until actual labor begins is an advantage of a psychologic nature only. However, much better patient cooperation can be expected if the method used is efficient. The comparison in table 5 shows that 94 per cent of the patients receiving Pitocin intravenously started within two hours as compared with 51 per cent of those receiving it intramuscularly.

TABLE 6.—*Maternal Complications.*

Complication	Labor Not Induced	Labor Induced
Preeclampsia	8	12
Eclampsia	0	0
Hemorrhage	8	14
Febrile puerperium	10	6
Placenta previa	4	10
Abruptio placenta	1	1
Stillborn infant (macerated)	2	6
Maternal deaths	0	0

Comparison of the two groups in regard to maternal complications shows little difference (table 6). In preeclampsia it has been my custom to do amniotomy as soon as the general condition of the patient is considered satisfactory, then to start oxytocics if the labor fails to begin promptly. It had been my impression that the incidence of hemorrhage was higher in the induction group, but study of the statistics failed to show a marked difference. In cases of intrauterine death, if the cervix is in a "favorable" condition, I believe it is kinder psychologically to the mother to empty the uterus rather than wait for spontaneous labor.

SUMMARY AND CONCLUSIONS

A study of 2,500 consecutive deliveries is presented with an analysis of the results of 440 cases in which labor was induced. Attention is called to both the indications for and the contraindications to induction. Proper patient selection for induction is stressed, and under the conditions outlined induction is shown to be a safe, rational procedure.

Amniotomy followed by intravenous Pitocin is the method of choice in most instances. The other common methods used are discussed.

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1318 Main Street.

ABSTRACT OF DISCUSSION

DR. JAMES T. DOWNS, III, Dallas: This paper is a well presented analysis of a subject that is coming more and more to the front ranks of obstetric topics, particularly in the so-called rural areas where vast mileage often separates the patient and the doctor and hospital. Dr. Harris has solved this problem, at least in part.

As to the clinical data presented, the incidence of actual inductions is not high and corresponds to the indications presented, considering the fact that many patients must be from great distances. This compares to my own city practice, in which I found an incidence of induction of 5 per cent, where there are few patients who are not within a twenty minutes' ride of the hospitals. On analysis of my cases, those in which labor was induced were found to be either patients with toxemias or highly apprehensive persons with previous short precipitate labors. Partial placenta previa is a good indication, and usually amniotomy is sufficient to institute labor promptly and control whatever bleeding may be present. It is the opinion of some pediatricians that induction of labor or cesarean section in cases of hemorrhagic disease of the newborn is not to be preferred over permitting the baby to become less premature, although still exposed to the maternal antibodies. Even so, after thirty-seven weeks, induction would probably be the procedure of choice, as prematurity is no longer a problem at that stage of gestation.

The statistics presented on length of labor in Dr. Harris's patients are of interest in that the uninduced group had slightly longer labors than the induced groups. This does not seem to be significant. First, the uninduced group contained about 50 per cent primiparas, in whom labor is generally long, whereas in the induced group only 20 per cent were primiparas. Second, patients ripe for induction are certainly candidates for a short labor, especially primiparas, because all the causes tending to delay descent and engagement are eliminated by the conditions incident to permitting the induction.

None of the complications of induction presented by the essayist, except possibly hemorrhage, appear statistically significant enough to indict this procedure.

As there are no statistics on fetal morbidity and mortality, the result on that member of the team cannot be evaluated, but under proper circumstances, there usually is little or no effect on the fetus.

The conditions for induction of labor are well defined and if followed will seldom lead one into the dilemma of a failed or delayed induction. It unfortunately has been my experience that the ripe cervix and the low-lying head found on rectal examination in the office occasionally reverts to a thick and unopened cervix supporting a fetal head at station two when examined vaginally in the hospital. It takes will power and courage to refuse the temptation to prove one's self right by proceeding as planned, instead of returning the patient to her home and avoiding possible prolonged or unsatisfactory labor.

As to the method used by the essayist, it is a different application of an apparently well tried and satisfactorily received method for treating uterine inertia. As Dr. Harris points out, the intravenous use of pituitary substance in induction has only psychologic advantage over the commonly used intramuscular Pituitrin, in that the latent period is shorter, which of course has its value. Also the use of Pituitrin intravenously is theoretically superior to its intramuscular use because of the features of control and evenness in administration, but practically, it is much more time-consuming and arduous. Also, it has been demonstrated that the method of induction matters little as long as the conditions and indications previously outlined are present and the membranes are ruptured. Whatever else is done should be both innocuous and convenient to the obstetrician and the patient.

Finally, even if spontaneous labor does have its risks to the baby and mother, it does not relieve the obstetrician of the responsibility of the occasional complications following induction, even if requested by the patient. This is particularly true in a case of a prolapsed cord or of amnionitis following a delayed onset of labor. In addition to these, there is the occasional patient whose uterus reacts too forcefully to Pituitrin even in small doses, with resulting tetany and fetal death, cervical lacerations, and hemorrhage or uterine rupture. To avoid these accidents, the obstetrician should watch the administration of Pituitrin instead of delegating it to a nurse or hospital assistant. With these hazards in mind, I am prone to defer induction, unless medical indications require it, or anxiety and nervous reaction on the part of the patient make it desirable.

TEXARKANA PLANS CRIPPLED CHILDREN'S HOME

Property and building for the Temple Memorial Convalescent Home for Crippled Children in Texarkana has been given to the Texarkana Society for Crippled Children and plans are under way for putting the institution in operation at an early date.

The property was donated by several philanthropists in memory of the late T. L. L. Temple family to serve as a convalescent home for crippled children for Texarkana and vicinity. The program to be instituted on an out-patient basis will include physical therapy, occupational therapy, elementary school education, nondenominational religious training, and speech therapy. Dr. S. A. Collom, Jr., serves as president of the Society for Crippled Children.

ANALYSIS OF CESAREAN SECTIONS IN AUSTIN, 1949-1951

With a Modification of the Low Flap Transverse Cesarean Section

MILTON TURNER, M.D., Austin, Texas

THE purpose of this presentation is to analyze the cesarean sections done in Austin, Texas, during the three year period 1949 through 1951 and to present a simplified method of the low flap transverse cesarean section. A total of 11,775 deliveries were done during this period by the medical staffs of Bergstrom Air Force Base Hospital, three voluntary hospitals, and Brackenridge, the city hospital. The patients were attended by the house staff, general practitioners, and specialists. The charts of 336 patients were reviewed as to indications for section, age, parity, anesthesia, morbidity, fetal mortality, type of section, and additional operative procedures. A comparison of this series with other recently published series is presented.

CESAREAN SECTION RATE

Of 11,775 deliveries in Austin covered by this study, 369 (3.1 per cent) were delivered abdominally. There were 18 sections (1.1 per cent) performed in 1,574 service deliveries and 351 sections (3.4 per cent) in 10,201 private deliveries. This parallels the difference in incidence noted by many authors between private and service cases. The statistics in Austin compare very favorably with those reported by several of the major clinics elsewhere (table 1).

AGE AND PARITY

The relation of age and parity to the number of sections is shown in table 2. There were 137 (40.8 per cent) cesareans done in the primiparas. The larger percentage 48.2 (162 cases) were done in the age group from 25 to 34 years. The rate (4.5 per cent) in the primiparous group aged 35 or older is not excessive. Blewett[1] reported the cesarean section incidence of two of the major Austin hospitals in the period 1941 to 1946. There were 285 cesarean sections, an incidence of 2.74 per cent. The maternal mortality was 2.8 per cent. One will note upon comparing the statistics (table 3) that there have been no maternal deaths in the present series. The overall incidence of cesarean sections has not increased appreciably, but the overall decrease in maternal and fetal mortalities has decreased significantly, especially at Brackenridge Hospital.

INDICATIONS FOR SECTION

In this study the most frequent indication for cesarean section (table 4) was previous cesarean section (115 cases, 34.2 per cent). The second most frequent indication was cephalopelvic disproportion (80 cases, 23.8 per cent). It will be noted that 138 cases (41 per cent) in this series were done for current or previous cephalopelvic disproportion.

Eight cases (2.4 per cent) were of particular interest in that they had unsuccessful induction of labor by rupture of membranes and Pitocin. All these cases came to surgery. One of them developed intrapartum

TABLE 1.—*Comparative Cesarean Section Statistics.*

	Total Deliveries	Cesarean Sections	Incidence	Maternal Deaths (%)	Uncorrected Fetal Deaths (%)
1941-1945 Average teaching hosp. reported by Kistner[7]	165,990 (11 hosp.)	7,137	4.3	0.37	7.5 (8 hosp.)
1942-1947 Sloan Hosp.[6]	17,226	1,000	5.8	0.008	3.7
1940-1949 Cincinnati Gen. Hosp.[7]	25,100	251	1.0	1.1	5.1
1941-1950 Jeff Davis Hosp., Houston[8]	22,296	231	1.03	0.87	10.8
1944-1950 Norwegian Hosp., Brooklyn, N. Y.[10]	10,173	400	3.93	0.25	5
1941-1946 Brackenridge and Seton Hosp., Austin[1]	10,380	285	2.74	2.8	11.9
1949-1951 Austin	11,775	369	3.1	0.0	4.8

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uterine infection, a prolapsed cord with intrauterine fetal death, and a hysterectomy was performed.

Complete rupture of the uterus was the indication in 4 patients, all of whom had had previous classical sections. There were 2 additional cases in which partial dehiscence of the uterine scar was an incidental but important finding at the time of repeat section. One was in a previous classical section and one in a previous low flap vertical section.

TABLE 2.—*Age and Parity of Austin Patients Subjected to Cesarean Section.*

Parity	Age (Years) Unknown	Under 17	17-24	25-34	35-44	Over 44	Total
Unknown	0	0	1	0	0	0	1 (0.3%)
0	2	4	63	53	14	1	137 (40.8%)
1	4	0	36	66	16	0	122 (36.3%)
2	0	0	13	31	6	1	51 (15.2%)
3	1	0	2	6	3	1	13 (3.9%)
Over 4	0	0	0	4	4	0	8 (2.4%)
Total	7	4	115	162	45	3	336
	2.1%	1.2%	34.2%	48.2%	13.4%	0.9%	

TYPE OF PROCEDURES

The greatest number of sections were of the classical type (119 cases, 35.4 per cent) (table 5). The low flap vertical section was done in 113 cases (33.6 per cent) and the low flap transverse section in 96 cases (28.6 per cent). There was one extraperitoneal section (0.3 per cent) done for teaching purposes. This patient had had a fully dilated cervix for twelve hours and midforceps application had failed. In 70 cases (22 per cent) some additional operative procedure was done, the most frequent being sterilization (59 cases). Seven hysterectomies (2.1 per cent) were done for the following indications: a uterus didelphus because of 2 previous sections and adhesions; an infected uterus following failed surgical induction; immediate postsection hemorrhage; prolonged labor with membranes ruptured for four days; 2 for ruptured uterus; and 1 with undetermined cause. Other surgery performed was right salpingo-oophorectomy in 1 patient, right salpingo-oophorectomy and left tubal ligation in 1 patient, and myomectomy in 2 patients.

MORBIDITY AND MORTALITY

A patient was considered morbid if the temperature rose to 100.4 F. or higher in any two twenty-four hour periods exclusive of the first twenty-four hours following operation. There was a total of 74 morbid patients (22 per cent) as noted in table 5. This compares favorably with Cody,[3] who reported 49 per cent in 1950 and 38 per cent in a ten year period and Zarou,[10] who reported 28.5 per cent in his series. The greatest number of morbid patients (24.4 per cent) were noted following the classical section. The low flap vertical section approximated this morbidity with 23 per cent. The low flap transverse section had an appreciably lower morbidity rate (16.6 per cent).

The morbidity was not increased by additional surgery. Additional surgery was performed in 56 (21.1 per cent) of the 264 nonmorbid cases and in 14 (19 per cent) of 74 of the morbid cases.

The fetal mortality rate in Austin compares favorably with other reported studies (table 1). The uncorrected infant mortality was 18 (4.8 per cent) in cesarean sections. These are listed in table 6. There was more than 50 per cent decline in mortality in this study compared with the series previously reported by Blewett (table 3). There has also been a gradual yearly decline during the past three years with essentially the same cesarean section rate (table 7).

ANESTHESIA

The majority of patients received inhalation anesthesia, but there has been an increasing tendency toward regional anesthesia. There were 256 cases (76.2 per cent) done under inhalation anesthesia, and 80 (23.8 per cent) were done under regional anesthesia (table 5). Eight (44 per cent) of the fetal deaths were in premature infants in cases in which inhalation anesthesia was given. There was 1 premature fetal death in which spinal anesthesia was given. Seven (38.5 per cent) term fetal deaths were in cases where inhalation anesthesia was given, and 2 cases (11 per cent) were in spinal anesthesia (table 6).

TABLE 3.—*Comparative Statistics in Austin.*

	Total Deliveries		Cesarean Sections		Incidence		Maternal Deaths (%)		Uncorrected Fetal Deaths (%)	
1941-1946										
Brackenridge	5,569		132		2.37		5.3		18.18	
Seton	4,811		153		3.18		0.65		7.19	
		10,380		285		2.74		2.8		11.9
1949-1951										
Brackenridge	4,945		130		2.6		0		5.3	
Seton	3,531		131		3.7		0		5.3	
		8,476		261		3.07		0		5.3
St. David's	2,255		97		4.3		0		3.9	
Holy Cross	817		7		0.9		0		14.3	
Bergstrom	227		4		1.7		0		0	
		11,775		369		3.1		0		4.8

CLASSICAL v. LOW FLAP SECTION

Most classical sections admittedly are being done because the procedure is so simple and because of the lack of technical skill and knowledge. The low flap section was revived by DeLee[5] and Beck in 1925 to

reduce the risks of abdominal delivery. Hemorrhage is less in the thinned out lower segment than through the thick contractile portion of the uterine wall. The intestines do not come into sight, and it is easier to prevent fouling of the abdominal cavity by the uterine contents. As a result there are less postoperative adhesions, and those that do form are in more favorable location. The risk of cutting into the placenta implanted on the anterior wall is less than in a classical section. In many clinics the low flap incision together with antibiotics is preferred to the extraperitoneal section in neglected and infected cases. A real test of labor may then be permitted with relative safety. The low flap incision can be done with greater

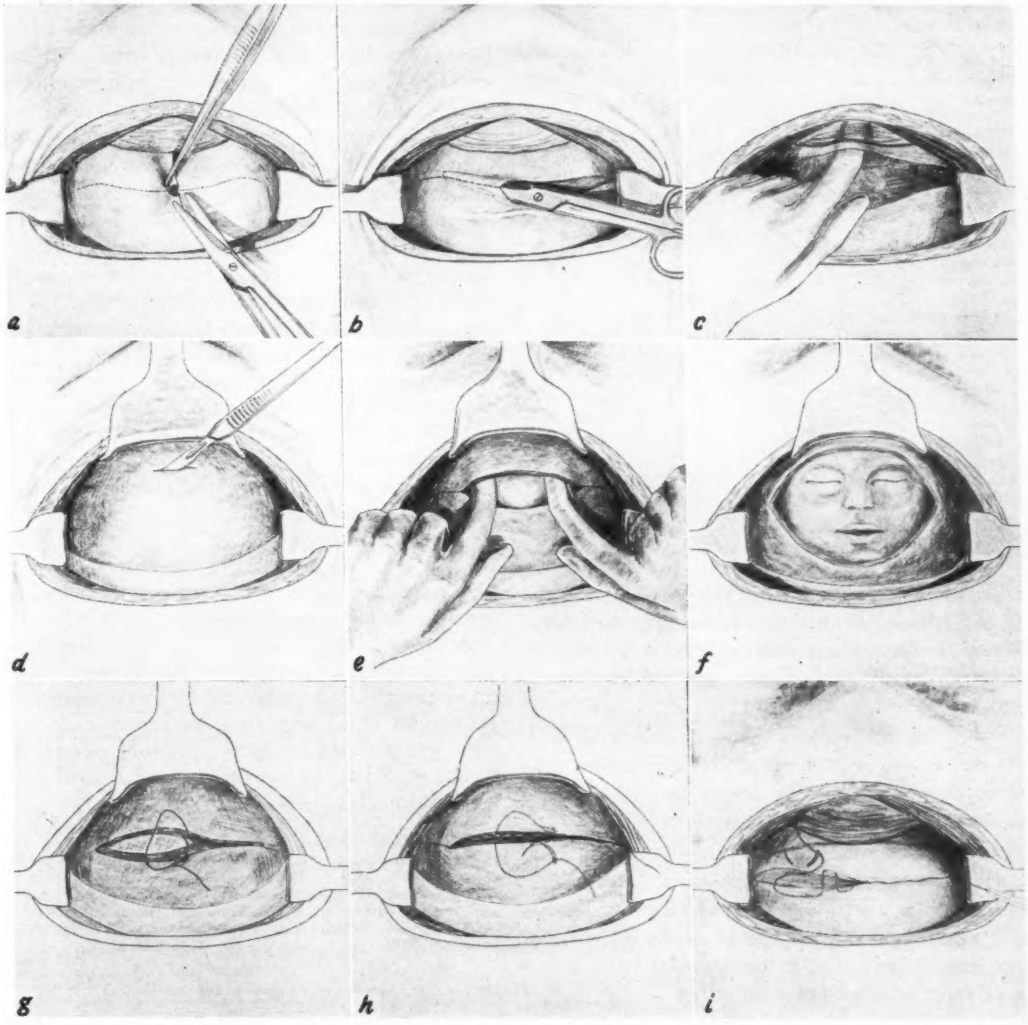

FIG. 1. Steps in a modified low flap transverse cesarean section.

a. The parietal peritoneum is picked up and incised transversely in the loose tissue above the bladder reflection.

b. A pair of Mayo scissors is inserted into the loose areolar tissue. Using a blunt dissection the peritoneum is freed from the underlying uterus.

c. The lower flap of peritoneum is reflected downward by blunt finger dissection, carrying with it the bladder.

d. The lower flap and bladder is held under the symphysis with a retractor. A transverse incision is made as low as possible in the lower uterine segment and extended laterally sufficiently to insert both index fingers. This incision is made gently to the amnion, and the few remaining uterine fibers may be perforated bluntly with the index finger.

e. The opening is then widened by separating the two index fingers in a transverse direction, bluntly splitting the muscle fibers.

f. The face is rotated anteriorly, and suction of the nasal passages and mouth is carried out. The infant may then be delivered by forceps or manual expression.

g. The lower uterine segment is closed by means of a continuous over and over suture of the muscle wall.

h. A Cushing inverting suture in the superficial muscle layer completes the closure. Better hemostasis is obtained.

i. The bladder flap is brought up covering the raw area and suture line, and the peritoneum is repaired.

TABLE 4.—*Indications for Cesarean Section.*

Indication	No.		%
Previous section		115	34.2
Cephalopelvic disproportion	58		
Unknown cause	35		
Hemorrhage	10		
Toxemia	10		
Medical	2		
Cephalopelvic disproportion		80	23.8
No test of labor	47		
Test of labor	33		
Uterine bleeding		56	16.6
Placenta previa	38		
Premature separation	18		
Abnormal presentations		32	9.5
Breech	14		
Transverse lie	14		
Face and brow	3		
Prolapse cord	1		
Toxemia		15	4.5
Preeclampsia	13		
Eclampsia	2		
Valuable baby		9	2.7
Induction inertia		8	2.4
Miscellaneous		13	3.9
Diabetes	3		
Double uterus and vagina	2		
Ruptured ovarian cyst	1		
Cervical dystocia	1		
Cervical laceration	1		
Vulvectomy for cancer	1		
Contraction ring	1		
Twins	1		
Pyelitis	1		
Hematuria	1		
Uterine ruptures		4	1.2
Inertia		3	0.9
Cause unknown		1	0.3
Total		336	100

facility after a real test of labor because of the stretching and thinning of the lower uterine segment. A review of the literature reveals that there have been no catastrophic ruptures following low segment operations.

The advantages of the low flap transverse incision over the vertical incision are many. The bladder separation does not have to be carried downward as far. The incision is completely in the lower uterine segment, and extension either upward into the uterine muscle or downward through the cervix or bladder is not likely. The objection to the transverse incision by many operators because of lateral extension into the large vessels is valid, but ligation of the ruptured vessels is not a formidable hazard. Placenta previa does not contraindicate this incision.

A fairly extensive search of the American literature has not revealed a description of the modification to be presented (fig. 1) despite the fact that it has been in fairly common usage in several sections of the country. It was but briefly described in the 1948 "British Surgical Practice."[2]* This method is a simplification of the opening of the lower uterine segment transversely.

PROCEDURE

The bladder should be emptied and the catheter left in place during surgery. Any suprapubic abdominal approach may be used. After the abdominal cavity is opened, the parietal peritoneum is incised transversely in the loose tissue above the bladder reflection. The lower flap of peritoneum is reflected downward by blunt finger dissection carrying with it the bladder. This lower flap and bladder is held under the symphysis with a retractor for protection. An assistant makes traction upward on the uterus to bring the lower segment near the surface. A transverse incision is made with a knife as low as possible in the lower uterine segment in the midline and extended laterally sufficiently to insert both index fingers. This incision is made gently to the amnion, and the few remaining uterine fibers may occasionally be perforated bluntly with the index finger. The opening in the lower uterine segment is then widened by separating the two index fingers in a transverse direction, bluntly splitting the muscle fibers. The amniotic sac is then ruptured, the fluid aspirated off, and the infant delivered. Ergotrate grain 1/320 is given intravenously. The placenta is manually removed following separation, and the incision of the lower uterine segment is closed in two layers: the first an over and over continuous suture of the entire muscle wall; the second a Cushing inverting suture in the superficial muscle layer. In this manner more complete hemostasis is obtained. The bladder flap is then brought up to cover the raw area, and the peritoneum is repaired. All blood and clots are removed, and the abdomen is closed in layers. Following surgery the fundus should be compressed and the vaginal outlet examined for blood loss.

*AUTHOR'S NOTE: *Since presentation of this paper, G. A. Bourgeois and L. E. Phaneuf have described the muscle-splitting or "spread" operation in the* American Journal of Obstetrics and Gynecology 63: 730-743 *(April) 1952, and it was also presented as a stereocolor exhibit at the December 15, 1952, meeting of the American Academy of Obstetrics and Gynecology by Dr. M. B. Laven, Mt. Sinai Hospital, Cleveland, Ohio.*

TABLE 5.—*Type of Section, Morbidity, and Anesthesia.*

Type	Total	Nonmorbid		Morbid		Anesthesia		
			Add. Surg.		Add. Surg.	Inhalation	Spinal	Local
Classical	119	90	29	29	5	99	19	1
	35.4%			24.4%				
Low vertical	113	87	14	26	4	100	13	0
	33.6%			23%				
Low transverse	96	80	13	16	4	49	39	8
	28.5%			16.6%				
Hysterectomy	7	5		2	1	7		
	2.1%			0.6%				
Extraperitoneal	1			1		1		
	0.3%			0.3%				
Total	336	264	56	74	14	256	71	9
	100%	78%		22%		76.2%	21.1%	2.7%

DISCUSSION

In Austin the cesarean section rate has remained approximately the same for the past three years. With the increase in flexibility of indications for cesarean section there has not been a tendency to abase this operation. The estimated section rate of 6 per cent of D'Esopo[6] to eliminate the maternal and fetal delivery trauma has not developed in this community. There has been a definite trend in the decline of fetal mortality.

Test of labor was permitted in only 33 of 80 cases of cephalopelvic disproportion. The diagnosis in many of the remaining cases was made following roentgenray pelvimetry where the radiologist stated that questionable pelvic measurements were present. It has been stated repeatedly in the literature that inasmuch as the radiologist does not examine the patient, does not see the patient in many cases, and does not observe the patient in labor, his interpretation of whether or not a certain fetus will pass through a certain pelvis should not be accepted. All a radiologist can ascertain is the measurement of shadows. Some of the cases presented might have delivered vaginally with no trouble had they been given a test of labor. This can be done with greater safety with the present day use of blood, antibiotics, and the use of the low transverse cesarean section.

Surgical induction of labor is not without danger. The careful selection of patients and fulfillment of all qualifications for induction must be emphasized. Eight cases required cesarean section following unsuccessful induction, and one of these had a hysterectomy as a result of infection.

There has been a noticeable trend toward regional anesthesia in the past three years. Masters and Ross[8] have demonstrated a 50 per cent reduction in fetal mortality with the use of regional anesthesia. Of the stillborn infants reported, only 2 mothers received spinal anesthesia whereas 10 received gas. There were 8 premature deaths in which inhalation anesthesia was given as compared with 1 in which spinal anesthesia was given. It is definitely believed that inhalation anesthesia should not be used in prematurity. The fetal mortality of other clinics has undoubtedly declined as precipitously as in Austin during the past three years. Ours is not a fair comparison, for the series reported by the other clinics have not been as recent.

It will be noted that the morbidity of the low flap vertical section approximated that of the classical section but that the transverse section had a much lower rate. There were 5 ruptures of the uterus, 4 complete and 1 incomplete, reported in this series in previous classical sections and 1 incomplete rupture in a previous low flap vertical section. There were 3 fetal deaths, all occurring in cases of complete rupture. A review of the literature revealed no catastrophic ruptures following low segment operations.

The simplified method of performing the low flap transverse section described may encourage those performing classical sections to change their technique.

TABLE 6.—*Uncorrected Fetal Mortality.*

Indications	Premature				Term				Total
	Stillbirth		Neonatal		Stillbirth		Neonatal		
	Gas	Spinal	Gas	Spinal	Gas	Spinal	Gas	Spinal	
Erythroblastosis (severe)								1	1
Transverse lie	1	1							2
Unsuccessful induction, intrauterine infection, transverse lie					1				1
Preeclampsia	1		1				1		3
Rupture of uterus	2				1				3
Double uterus	1								1
Placenta previa			1		1				2
Macerated cause undetermined, prev. section	1								1
Premature sep. placenta						1	1		2
Cephalopelvic disproportion, unsuccessful vaginal delivery					1				1
Previous section, cephalopelvic disproportion							1		1
Total	6	1	2		4	1	3	1	18
	33%	5.5%	11%		22%	5.5%	16.5%	5.5%	100%

TABLE 7.—*Section Rate and Fetal Mortality.*

	Sections		Uncorrected Fetal Deaths	
	No.	%	No.	%
1941-1946 (two hospitals)	285	2.74	34	11.9
1949-1951 (two hospitals)	261	3.07	14	5.3
1949-1951 (all hospitals)	369	3.1	18	4.8
1949	115	3.0	6	5.2
1950	124	3.2	6	4.8
1951	130	3.1	6	4.6

SUMMARY AND CONCLUSIONS

An analysis of 336 cesarean sections in general hospitals during the period 1949 through 1951 is presented.

The annual cesarean section incidence during this period remained approximately the same. This incidence is lower than the average of many obstetric services in other large urban centers.

The most frequent indications for cesarean section were previous section, cephalopelvic disproportion, and abnormal uterine bleeding.

Classical sections in this series represented 35.4 per

cent of the cases with a morbidity rate of 24.4 per cent. The low flap vertical morbidity rate approximated that of classical sections. The low transverse section had the lowest, 16.6 per cent. The overall morbidity was 22 per cent.

There were 6 cases of ruptured uteri, 4 complete and 2 incomplete. Four complete and 1 incomplete followed previous classical cesarean sections, and 1 incomplete followed a previous low flap vertical section.

The uncorrected fetal mortality rate was 4.8 per cent, which compares favorably with other clinics. In Austin this represents a marked reduction over the previously reported series (1941-1946).

There were no maternal deaths.

The advantages of the low flap transverse cesarean section over the classical and low flap vertical section are presented.

A simplified method of low flap transverse section by muscle splitting technique is described.

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2406 Rio Grande.

ABSTRACT OF DISCUSSION

DR. WILLIAM F. GUERRIERO, Dallas: This painstaking analysis is very worth while. We must always stop and compare our present acceptance and use of a procedure such as cesarean section with what we have done in the past and make plans for what we should do in the future.

As time goes on, it seems that the indications for cesarean sections will increase in number; however, as in this report, it is noted that as some indications increase, others decrease so that the overall percentage of cesarean sections performed in the hands of competent, conscientious obstetricians remains approximately 3 to 6 per cent.

As to the other factors which Dr. Turner has brought out, I can only agree, except to say that each obstetrician should give much and careful consideration to the selection of cesarean section as a method of delivery in every patient, since in most instances a repetition of the procedure will be required for that person in the future. It is true that some patients can deliver from below after cesarean section, but these are negligible; most patients are a bit skeptical about taking the chance, even with the low incidence of ruptures that follow the favorite low flap section.

The type of cesarean section is important only from the standpoint of whether or not it will produce further contamination of the peritoneal cavity. Should a mistake in estimation of the capacity of the patient to deliver from below have occurred, and the uterus be grossly infected, then a selection of a cesarean section, followed by a hysterectomy, or an extraperitoneal section is indicated. However, one should remember that extraperitoneal section is not a guarantee that pelvic cellulitis, pelvic peritonitis, and septicemia will not occur, since spread of puerperal infection is more from the endometrium rather than contamination otherwise.

The low flap section is performed easily, whether using the transverse or vertical incision, and it should always be the procedure of choice.

Physicians, Skilled Laborers Show Comparable Hourly Earnings

The concept of overtime work at overtime pay is seldom applied to a profession like medicine. If the concept were so applied, it would demonstrate that the skilled laborer and the typical doctor get roughly comparable hourly returns, states the January, 1953 issue of *Medical Economics*.

In a nationwide survey conducted among its 134,000 physician readers, the magazine found that the average family doctor had a 1951 net income, before taxes, of $14,098. This figure, the magazine points out, does not take into account the extra hours the typical physician puts in. The average family doctor's hourly base pay was computed assuming time-and-a-half for overtime and double time for Sunday work, and reported thus:

"According to our survey, the family doctor works an average of sixty-two hours a week. Twenty-two of these hours must be counted as overtime; perhaps five of these hours represent Sunday work. For pay purposes, therefore, he'd be credited with about seventy-five hours a week, or 3,750 a year. . . .

"The average family doctor nets $14,098 annually. Divide this figure by his hourly credits for the year (3,750) and you get the equivalent of hourly base pay. It turns out to be $3.76 an hour."

The magazine observes that "the interesting thing about this figure is its strong resemblance to current base pay for skilled union labor. Many bricklayers, for example, get $3.25 an hour nowadays. And if other workers earn less, and if medical specialists earn more, isn't this explainable in terms of *degree* of specialized skill?"

First World Congress on Fertility and Sterility

The First World Congress on Fertility and Sterility will be held May 25-31 in New York sponsored by the International Fertility Association with the cooperation of the American Society for the Study of Sterility. Persons planning to attend are urged to write to the Chairman of Local Arrangements, 1160 Fifth Avenue, New York 29, for advance registration.

HISTORY OF CIRCUMCISION

Introduction of a New Instrument

HERMAN I. KANTOR, M.D., Dallas, Texas

CIRCUMCISION is perhaps the oldest and certainly the most frequently performed of all the surgical procedures. The benefits of the operation have become manifest, and its present wide application is well deserved. With the passage of time, the complex rituals associated with its origin in antiquity have fortunately become simplified or have been discarded entirely.

It is said that the first records indicate that some type of circumcision was performed by the Egyptians prior to 2400 B. C.[7] However, such operations in no way resembled our present-day thoughts on circumcision. They apparently consisted of mutilation of the phallus in the performance of local ritual.

According to the Old Testament, circumcision was practiced by Abraham about 850 B. C. The operation was ordained to remind the Jews of their fidelity to God.[2] Although its exact origin is not clear, it is generally agreed that this was the first circumcision to resemble the operation which is performed today.[3]

The practice apparently spread rather quickly to all parts of the world. The peoples of Africa, Asia, and Europe and many tribes in the Western Hemisphere present historical evidence to show their adoption of the custom many centuries ago.

What were the reasons given for the performance of circumcision? They seem to fall into three categories:

1. *Religious.*—Among many tribes, the procedure represented a dedication of the phallus to their gods, in return for fertility. For some it was performed at puberty as a test of courage and endurance. Others believed it to be a symbol of future reincarnation. The foreskins were often planted in order to bring a bountiful harvest, or buried at sea to assure a plentiful catch of fish.

2. *Tribal Ritual.*—Some primitive people still use circumcision as a requisite for acceptance into the tribe. Usually elaborate ceremonies are carried out with the procedure. In one African tribe, the males dress as women until after the circumcision has been performed. Only then are they permitted to take their rightful place among the men. Often multiple incisions are made in the foreskin and adornments are added. Occasionally circumcision is carried out in preparation for marriage. It is interesting to note, for example, that the Arabic word "Hatana" means both to circumcise and to marry.[5]

3. *Hygienic and Prophylactic.*—This is a newer concept. There is little written evidence to indicate that it played a prominent part in establishment of the ritual among the Jews. The cleanliness which is permitted as a result of the procedure is obvious. Its role in prevention of penile cancer is also well established.

The rules for circumcision as ordered by the Jewish high priests of old, for the most part are carried out even today. They laid down four chief principles in their ritual:

1. The procedure is done on the eighth day of life. (We know now that at this time the prothrombin levels return to normal. Our present improved methods of circumcision may reduce the importance of such timing.)

2. The glans is bared with removal of the outer skin. Thus they carried out the basic principle of circumcision.

3. The mucous membrane is torn. It was undoubtedly noted that torn tissue was less likely to bleed. Probably in those days bleeding was far more serious than rapid healing.

4. Resulting blood is sucked. At one time this was thought a necessary aid to rapid clotting. It was directed that the surgeon's mouth and lips be washed with wine and applied to the fresh wound. It is no longer an integral part of the ritual as practiced today. When it is included in the observance of custom, a glass tube avoids direct contact.

It is also interesting to discover that early ecclesiastic practice recognized hemophilia. The priests specifically ruled that if a mother lost two children from bleeding following circumcision, under no circumstances were subsequent male children to be circumcised.

INSTRUMENTS

The instruments used in the procedure have gone through a long evolutionary period. The earliest consisted of stone knives, mussel shells, flint, and pieces of meteorite.[5] Later metal became available and the knife led the way to the age of the scalpel.

Since the operation is performed so frequently, it seems quite natural that many instruments have been devised in order to make the procedure easier and

From the Department of Obstetrics and Gynecology, Southwestern Medical School of the University of Texas.

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safer. Bleeding and infection are still the chief complications and they may be serious. For the most part these instruments reflect unusual ingenuity.[1, 4, 6, 8] In the hands of the inventors or their pupils, excellent results have been reported. However, they are usually too complicated for general acceptance. So far as can be determined, the majority of circumcisions are still performed by the cut and suture technique.

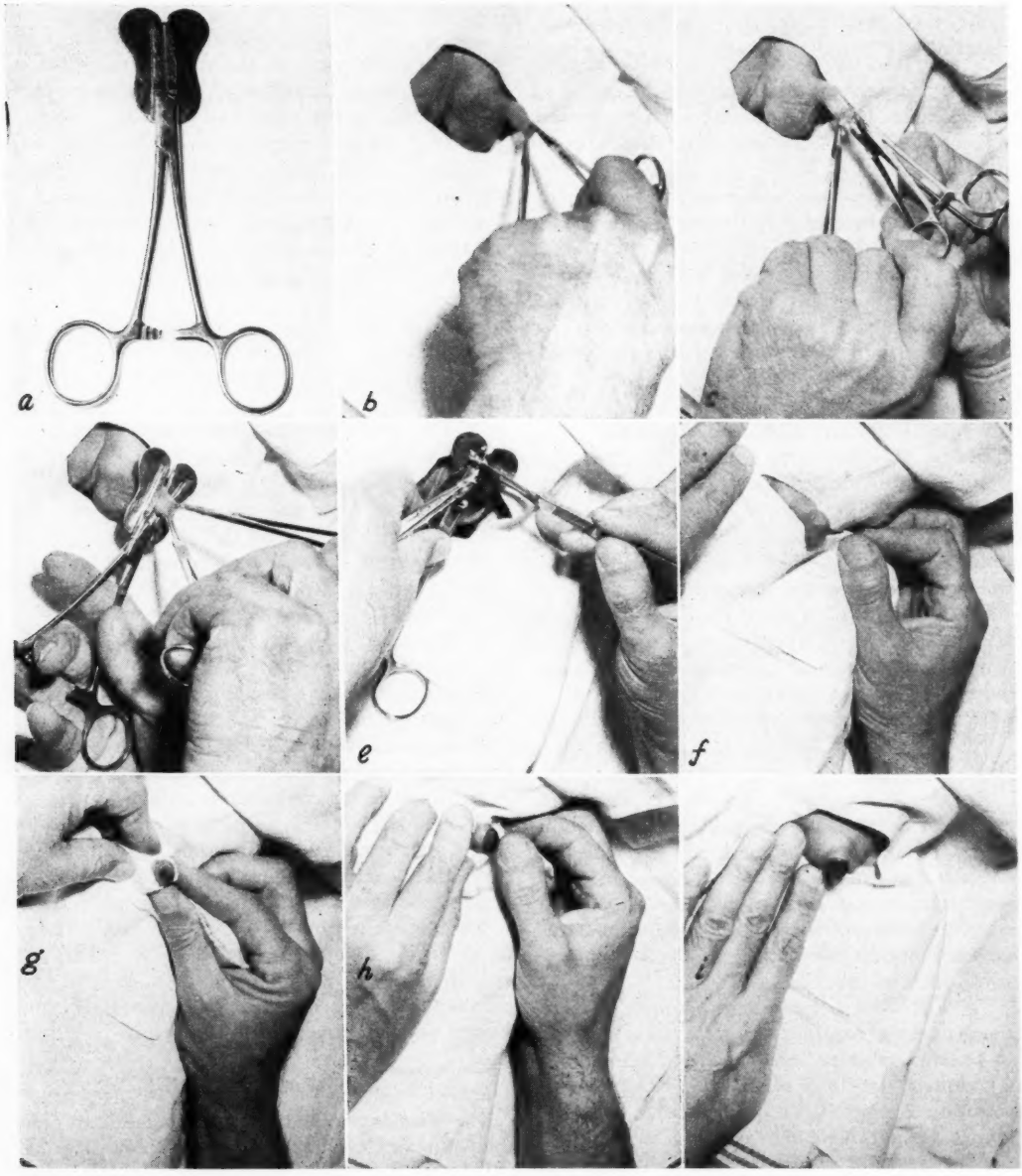

FIG. 1a. Special hemostat-clamp attached to a guard for use in the circumcision method illustrated.

b. The full thickness of the foreskin is grasped front and back with hemostats.

c. The mucous membrane is freed from the glans by a third hemostat or a probe previously dipped in Vaseline. Retraction of the foreskin, with or without dorsal slit, may be used instead. Vaseline is then applied to the mucous membrane.

d. The clamp is applied and locked.

e. After three minutes the foreskin is excised.

f. The clamp is removed.

g. The foreskin is brought forward to loosen it.

h. The foreskin is retracted gently. Remaining adhesions are separated.

i. The circumcision is complete. Mucous membrane is interposed between the cut edge of skin and the glans.

Since the operation is essentially simple and rapid, any instrument devised for use in circumcision should stress ease of application, brevity in performance, and perhaps safety of the procedure. If the clamp is "more fuss than it is worth," it will not be generally accepted.

The circumcision guard which has been used for centuries has always been satisfactory in serving two functions. It prevents the removal of too much foreskin, and it protects the glans.

A special hemostat-clamp* (fig. 1a) was prepared and attached to this guard. When the clamp is closed, the line of crushing is thin enough to permit adequate adherence of the mucous membrane to the skin without leaving a large bloodless area to necrose. Vaseline or soap solution is used on the mucous membrane side of the foreskin to prevent firm adherence to itself. After the clamp is removed, the glans acts as an obturator permitting the mucous membrane to separate readily.

Steps in the circumcision using the new instrument are illustrated in figure 1.

Any occasionally-found bleeding point can usually be controlled by pressure. If it seems desirable, a fine catgut stitch may be placed with ease since skin and mucous membrane are already adherent.

Follow-up care consists only of the application of Vaseline to the operative area when each diaper is changed. This discourages adherence of cloth to the incision and thus prevents bleeding.

Eight surgeons have cooperated in using this clamp and all reported complete satisfaction. No preliminary "learning period" is necessary and the procedure is not complicated by the instrument.

I am grateful to Dr. William F. Mengert for his encouragement during the development of the instrument. I would like also to express thanks to the physicians who cooperated during its trial period.

Manufactured through courtesy of J. Sklar Mfg. Co.

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ABSTRACT OF DISCUSSION

DR. A. TRUETT MORRIS, Dallas: The essayist has given us an instrument that takes some of the drudgery out of this necessary but tedious procedure. The instrument is simple, easily sterilized, and if handled properly does away with the necessity of using sutures.

In my private practice I have used the clamp consistently for the last 100 circumcisions. Two of the procedures necessitated suturing, one of them immediately and one after four hours. I believe this is comparable to other forms of circumcisions.

The chief advantage of using the instrument, in my opinion, lies in the fact that it is rapid and somewhat less painful to the infant than other methods.

Protection Against Recurrence of Rheumatic Fever

A new penicillin compound which is not readily absorbed by the body and which may offer prolonged protection against recurrences of rheumatic fever is described in an article in *The Journal of the American Medical Association,* December 20, 1952 issue.

Sufficient prophylactic amounts of the drug known as "bicillin" are said to remain in the body for periods up to four weeks after a single intramuscular injection, according to tests made.

Authors of the article express the opinion that the drug may prove effective in treatment and prevention of pneumonia, gonorrhea, meningitis, and syphilis.

The doctors report a study of 135 children and 8 adults known rheumatic subjects or in whom group A streptococci were found and who were given "bicillin" as a prophylactic agent. Patients who received 300,000 units of the new compound were found to have the drug in their systems seven days after an injection; those who received 600,000 units for 12 to 14 days; and those who received 1,200,000 or more units for as long as four weeks. Although side effects were somewhat severer than those found in use of other penicillin compounds, further studies of the drug are urged by the writers.

Southern Medical Disability Insurance

The Southern Medical Association is sponsoring a Group Disability Insurance Program for its members, according to an announcement by Dr. Milford O. Rouse, Dallas, councilor from Texas for the Southern Medical Association.

The actual insurance will be furnished by the Continental Casualty Company, which has similar plans in operation throughout the country. If as many as 50 per cent of the total membership of the Association applies, the company has agreed to accept all applications regardless of physical status. The charter enrollment period is January and February, 1953. All physicians interested in the program are urged to write to Mr. C. P. Loranz, secretary-manager of the Southern Medical Association, Empire Building, Birmingham, Ala.

Reprints of Papers on Medical Writing Available

A twenty-four page reprint incorporating several papers on medical writing which were read at the recent annual meeting of the American Medical Writers' Association is being made available to persons concerned with medical writing. Copies may be obtained by addressing Dr. Harold Swanberg, secretary, American Medical Writers' Association, 209-224 W. C. U. Building, Quincy, Ill.

REVIEW OF THE PHYSIOLOGIC-PATHOLOGIC CERVIX

JOE L. CORNELISON, M.D., San Angelo, Texas

IN order that the cervix may be best studied, a review of the anatomy must first be undertaken. Williams' description[13] is as follows:

The cervix is the portion of the uterus which lies below the isthmus and the internal os. On the anterior surface of the uterus its upper boundary is roughly indicated by the point at which the peritoneum is reflected on to the bladder.

It is divided, by the attachment of the vagina, into two parts: the supravaginal and the infravaginal portions of the cervix. The former is covered on its posterior surface by peritoneum, while its lateral and anterior surfaces are in contact with the connective tissue of the broad ligaments and bladder.

The infravaginal portion of the cervix, which is usually designated as the *portio vaginal*, projects into the vaginal fornix, and at its tip presents a small transverse opening, the *external os*, bounded in front and behind by the so-called anterior and posterior lips of the cervix. Owing to the fact that the posterior fornix is deeper than the anterior, the posterior lip appears longer than the anterior.

The external os may vary greatly in appearance. In the virgin, it is a small, oval opening.... After childbirth the orifice becomes converted into a transverse slit, and when the cervix has been deeply torn during labor it may present an irregular nodular or stellate appearance....

The cervix is composed of connective tissue in which are many nonstriated muscle fibers, many vessels and a certain amount of elastic tissue, a large part of its distensibility being due to the presence of the latter. The cervical canal... is fusiform in shape, and presents a longitudinal ridge upon its anterior and posterior surfaces, from which numerous others run off transversely, giving the membrane a corrugated appearance—the *arbor vitae uterina*....

In the adult the arbor vitae is limited to the cervical canal; but in childhood it extends throughout the entire cavity of the uterus, from which it begins to disappear as puberty is approached. In time, after repeated childbirth, it gradually becomes obliterated even in the cervical canal, whose walls become almost smooth.

The mucosa of the cervical canal, embryologically speaking, is a direct continuation of the lining of the uterine cavity, but has become differentiated from it and possesses a characteristic appearance, so that sections through the canal present a honeycomblike structure.... The mucosa is composed of a single layer of very high and narrow columnar epithelium, which rests upon a thin basement membrane. The oval nuclei are situated near the base of the columnar cells, the upper portions of which present a clear, more or less transparent appearance due to the presence of mucus. It is usually stated that these cells are abundantly supplied with cilia.

The cervical glands extend down from the surface of the mucosa into the stroma. They are of the branching, racemose variety, and are merely reduplications of the surface epithelium.... Friedländer was the first to demonstrate that it was made up of true "beaker" or mucous cells, which furnish the thick, tenacious secretion of the cervical canal. There is no submucosa in the cervix, the mucosa resting directly upon the underlying tissue.

The mucosa covering the vaginal portion of the cervix is directly continuous with that of the vagina, and, like it, consists of many layers of stratified epithelium. Normally, there are no glands beneath it, but occasionally those from the cervical canal may extend down almost to its surface, and, if their ducts are occluded, may become converted into retention cysts, which... appear as rounded protuberances the size of small peas. These are the so-called nabothian follicles or *ovula Nabothi*.

Normally, the stratified epithelium of the vaginal portion and the cylindrical epithelium of the cervical canal meet abruptly at the external os. This, however, is the case only in early life, as in older persons the stratified epithelium extends up the cervical canal gradually until its lower third, and occasionally its lower half, is covered by it.

This change is more especially marked in multiparous women in whom the lips of the cervix are not infrequently markedly everted....*

The blood supply to the cervix is from the cervicovaginal branch of the uterine artery, which is the main branch of the hypogastric artery. The venous drainage of the cervix is from the arcuate veins which unite to form the uterine vein on either side, continuing on to empty into the hypogastric vein. The lymphatic drainage is into the hypogastric nodes, which are situated in the space between the external iliac and hypogastric arteries. The nerve supply is principally from the sympathetic nervous system but partially from the parasympathetic system, the parasympathetic receiving its fibers from the second, third, and fourth sacral nerves. It then loses itself in the ganglion of Frankenhauser. The sympathetic systems gain access to the pelvis by means of the hypogastric plexus, which also terminates in Frankenhauser's plexus.

PHYSIOLOGIC STATE

The physiologic cervix has not been proved to have any sexual function, but during reproduction acts as a canal to transmit the spermatozoa from the vagina into the uterus and tubes. It has been shown, at the time of ovulation, that the cervical secretion is a clear, watery, viscous, mucous material which aids in maintaining the life of the spermatozoa with its alkaline polysaccharide content.

The cervix, during the normal menstrual cycle, probably produces the same epithelial changes as the

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This description remains essentially unchanged in Eastman, N. J., editor: Williams Obstetrics, ed. 10, 1950, and is reprinted by courtesy of the publisher, Appleton-Century-Crofts, Inc., New York.

vagina does; however, these changes have not been confirmed. The endocervix does not go through cyclic changes as was once thought by Stieve, but does change in secretory activity throughout the menstrual cycle.

The changes, during pregnancy, have been given a great deal of attention in the past several years. It has been noted by Glass and Rosenthal that there are marked epithelial proliferations; the squamous lining increases in thickness and becomes more cornified; the endocervical folds become taller and the lining cells are more active; the glands appear larger and are more numerous, and the cells are more active; the fibromuscular wall becomes extremely vascular; and edema increases toward term. Because cancer of the cervix occurs in approximately 1 in 2,500 pregnancies, it is becoming more apparent today that it is vital to inspect the cervix and treat it accordingly. In pregnancy, the most significant and outstanding feature of the vaginal portion of the cervix visible through the speculum is its fluid content and the tension under which it seems to be, especially as term pregnancy advances. This is particularly true where lacerations from former deliveries have altered the circulation. The slightest injury can produce terrifying bleeding with the speculum in place, but removing the speculum and allowing the surrounding tissue to collapse against the bleeding area will generally lessen it markedly. A tampon is also effective at this time with cervical bleeding. It has been shown that during pregnancy there is a marked decidual reaction in the cervix at times, and this decidual reaction may give an eroded, polypoid appearance. Today, all cervices in pregnancy with suspicious lesions should be Schiller stained and studied by biopsy without any fear of complicating the pregnancy. It has been shown by Danforth that during pregnancy there is a marked activity of the squamocolumnar junction, and it is emphasized that during pregnancy one's attitude toward the cervical or borderline cervical cancer should be particularly conservative until a positive diagnosis of malignancy has been made.

PATHOLOGIC CHANGES

The most common early pathologic change of the cervix is erosion. Erosion means replacement. It was Dr. Robert Meyer who championed the explanation of cervical erosions of which there are two types, congenital and acquired. For a proper understanding of this question it is necessary to bear in mind the development of epithelial linings of the uterine and cervical canals. All of the genital epithelium, with the exception of the covering of the lower portion of the vagina, is ultimately derived from the same mother tissue, the celomic epithelium. By the third or fourth month of fetal life, the differentiation between the cylindrical epithelium of the uterine canal and the squamous epithelium of the pars vaginalis is distinct. This line of transition between the two types is not at the external os but well within the cervical canal. At about the sixth or seventh fetal month the secretory activity of the cylindrical epithelium becomes manifest. The destructive effect of the secretion pushes the squamous epithelium out to the region of the external os. Often it is crowded even farther out so that the cylindrical epithelium covers an areola of variable size about the os. Thus it produces the so-called congenital erosion. The acquired erosion occurs in the same manner, except infection has been superimposed. It is inflammatory irritation of the endocervix which stimulates the columnar epithelium to override the squamous epithelium.

At this point squamous metaplasia or epidermization of the cervix might be discussed. Squamous metaplasia is a localized pathologic change in which atypical epithelium develops in columnar epithelium. Epidermization is a healing process in which long prongs of squamous epithelium creep along the basement membrane, lifting, and often destroying the cylindrical epithelium. It is common to see this invasion beneath the gland epithelium. Often, instead of stratified squamous epithelium, one sees only the basal layer of the squamous epithelium creeping beneath the gland epithelium, giving it an appearance of stratification in the glands. As the process advances the entire gland lumen may be filled with stratified squamous epithelium and the cylindrical epithelium choked to death. This is an important differential point to be made between invasive carcinoma of the cervix and epidermization of the cervix.

There are numerous pathologic terms which grossly and clinically are closely associated—paraleukokeratosis, hyperplasia of the cervix, leukoplakia of the cervix. These all appear to show the same pathologic changes at first but may be differentiated with advancement of time. It has been shown by the Schiller test that Gram's iodine solution will stain normal squamous epithelium of the cervix and vagina a deep brown, but not the columnar or metaplastic epithelium of the cervical canal or erosions. Lesions such as hyperplasia, paraleukokeratosis, or leukoplakia are not stained by the Gram's iodine solution, and, therefore, give Schiller positive areas. These Schiller positive areas are important only to suggest a biopsy site; when a Schiller positive site is detected a biopsy specimen from this area should be taken. Only the pathologist can say whether the nonstaining epithelium is leukoplakia, paraleukokeratosis, or cancer. Approximately 95 per cent of the positive Schiller tests are due to benign paraleukokeratosis or hyperplasia,

yet there is no way of demonstrating the difference except by submitting the tissue to a well trained gynecologic pathologist.

The next important pathologic condition I would like to discuss is carcinoma in situ. Carcinoma in situ, or intraepithelial carcinoma, has been extensively studied in the past few years. Pemberton and Smith reported that carcinoma in situ left untreated progressed to invasive carcinoma. Numerous papers have been published since that time and these reports confirm Smith and Pemberton's findings. In a recently published paper by Dr. Paul Younge a study of 135 cases of carcinoma in situ at the Free Hospital for Women in Brookline was presented. Three questions which were of great importance were asked: (1) Does carcinoma in situ occur at a regular rate consistent with the incidence of undoubted cancer of the cervix? (2) Is the average age incidence consistently less than for invasive cancer? (3) Is the disease an irreversible process?

The incidence of invasive cancer of the cervix in a general hospital reported by Meigs was 1.6 per cent. In 1937 at Free Hospital for Women there were 2 cases of carcinoma in situ found out of 151 biopsies, an incidence of 1.32 per cent. In 1946, out of 955 biopsies, 11 cases of carcinoma in situ were found, an incidence of 1.15 per cent. Out of 157 routine cervical biopsies or eroded areas in my office, 3 cases of carcinoma in situ have been found with an incidence of 1.5 per cent. These consistent percentages answer Dr. Younge's first question.

Dr. Younge found that the average age of 38.7 years for patients with carcinoma in situ was 9.3 years less than for those with invasive carcinoma of the cervix. The disease process was proved not to be reversible if frank carcinoma in situ was present. From these findings a lesson may be learned—whenever a cervical erosion is found on routine inspection of the cervix, Schiller's stain and biopsy of the cervix should be carried out.

As to the treatment of the early pathologic changes of the cervix, interesting work has been done on cauterization of the cervix by Smith and others who have proved that in patients who have been successfully studied by biopsy and cauterized no cancer of the cervix has ever been found on future examination. As to the treatment of carcinoma in situ, it is a lesion of no emergency. It is a lesion which should be discussed with the individual family and treated as an individual problem. In the nulliparous patient who is young and desirous of children, biopsy around the clock of the cervix with routine Schiller stain and biopsy every three to six months may be adequate treatment after a thorough cauterization or conization of the eroded area. If the patient is a multiparous patient with no desire for any more children and a definite diagnosis of carcinoma in situ has been made, total hysterectomy may be adequate treatment. It has been shown by many workers that total hysterectomy is better treatment than amputation of the cervix in the multiparous patient.

SUMMARY

The normal cervix undergoes cyclic changes and changes in pregnancy about which the physician should be informed so as to distinguish them from the modifications brought on by disease. Erosion, squamous metaplasia, paraleukokeratosis, hyperplasia, leukoplakia, and carcinoma in situ are pathologic conditions which should be kept in mind as possible cervical complications.

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510 West Beauregard.

ABSTRACT OF DISCUSSION

DR. CARY HIETT, Fort Worth: It may seem that this paper is elementary, but I believe the uterine cervix is one of the most neglected organs in the body.

Some doctors do what they call a complete physical examination without using a speculum to visualize the cervix. Some do the supravaginal hysterectomy and never know whether or not the cervix is clean or infected or whether or not an early malignancy is present. The cervix is one of the easiest organs in the body to examine, yet many women suffer from conditions referable to the cervix and are treated by a douche without having the cause diagnosed.

Cervical cytology is one of the newer weapons in diagnosing pathologic lesions of the cervix. It is easy to take

cervical smears, and there are laboratories scattered all over the state which are capable of diagnosing early cancer from these smears. There are still many doctors who do not take the time to obtain the specimen and send it to the laboratory.

It is impossible to stamp out a condition such as carcinoma of the cervix as long as doctors fail to use the speculum in a vaginal examination.

Polyps and Papillomas of the Cervix Uteri

JOHN L. GOFORTH, M.D., Dallas, Texas

POLYPS and papillomas of the cervix uteri, usually briefly referred to as "cervical polyps" in reference books, comprise an important group of relatively common lesions about which much is yet to be learned. It appears that little attention has been directed toward the origin and life behavior of the different varieties of these polypous lesions, and a study of their malignant transformation potentialities has not been attempted on a large scale follow-up basis. Laxness in terminology is largely responsible for whatever degree of confusion may exist in regard to the proper classification and evaluation of these interesting little lesions. An exact histologic analysis, often essential for adequate treatment, and upon which prognosis may depend, is requisite to the understanding of this group of lesions.

Inasmuch as a comprehensive pathologic classification of these lesions includes those of inflammatory and possibly endocrine origin, as well as those of neoplastic origin, the term "polyp" is used in this report to refer to an irritative reactive and/or inflammatory localized hyperplasia, whereas the term "papilloma" is employed to designate a localized neoplastic surface epithelial proliferation. A simple and usable pathologic classification of polypoid lesions of the cervix uteri, utilizing this important distinction and based upon a statistical analysis of 6,000 cervical biopsies performed during the five year period 1947-1951, inclusive, is readily established as follows: (1) simple inflammatory polyps, (2) polypous or pseudopapillomatous mucosal irregularities due to trauma, (3) polypous hyperplasias of pregnancy, (4) condylomatous polyps, (5) squamous cell papillomas, and (6) gland cell papillary adenomas.

From the viewpoint of terminology, this classification coincides with the histogenetic characteristics which these different cervical lesion entities exhibit.

SIMPLE INFLAMMATORY POLYPS

The simple inflammatory polyp constitutes the most frequent polypous lesion of the cervix uteri and occurs most often during and following the menopausal age; occasionally it is seen earlier. It originates as a polypoid overgrowth of an irritated or chronically inflamed cervical glandular mucosal fold and, continuing to enlarge, eventuates into a single or multiple pendulum-like structure of varying size which contains cystic mucous glands, abundant chronic inflammatory cells, and a glandular mucosal surface, often ulcerated at the tip (fig. 1).

The complication of metaplastic change, an epithelial change which is interpreted as a reactive or conversional phenomenon through which gland cells are transformed into squamous cells (cell of a lower order of specialization), occurs not infrequently in these inflammatory polyps. This process of "epidermization" of mucus-secreting glands or polyp surfaces is not causally related to neoplastic change yet seems to have played an important role in the acclaimed relationship of inflammatory polyps of the cervix uteri to malignant disease. Actually these simple polyps of the cervix uteri seldom undergo malignant change, and the relationship referred to is appraised as being both overrated and undeserved. During this five year study 1,409 cases of simple inflammatory polyps of the cervix uteri were examined histologically. Malignant transformation changes, early squamous cell carcinoma type, were noted in only 3 of these cases. This represents a very low incidence of 0.21 per cent.

REPAIR PHENOMENA

The elevated cervical and vaginal irregularities secondary to delivery tears and operative traumas are classified as repair phenomena. They are composed of scar tissue chiefly and may be surfaced by either squamous or glandular epithelium—squamous epithelium usually. Cryptic erosions and surface ulcerations of the mucosa may be noted at the margins of these formations. Not infrequently an incarcerated mucous retention cyst, located immediately beneath the covering epithelial membrane, is responsible for an exaggerated polypoid appearance of the lesion. These mucosal repair irregularities are considered to bear essentially the same theoretical causal relationship to neoplastic disease that might be anticipated of the cervical epithelium in contiguous location.

From the Department of Pathology, St. Paul's Hospital.
Read before the Section on Obstetrics and Gynecology, Texas Medical Association, Annual Session, Dallas, May 7, 1952.

POLYPOUS HYPERPLASIAS OF PREGNANCY

It is noteworthy that several different authors have described specific changes in the cervical epithelium during pregnancy. Hofbauer,[4] Galloway,[2] Johnson,[5] and Levey[6] have called attention to well defined polypous hyperplasia which may be encountered in the endocervical glandular epithelium, but less definite squamous epithelial changes have been recorded. Murphy and Herbut[7] found no particular squamous epithelial changes other than thickening. Carrow and Greene[1] in a study of the squamous and glandular epithelia from the cervices of 96 pregnant women

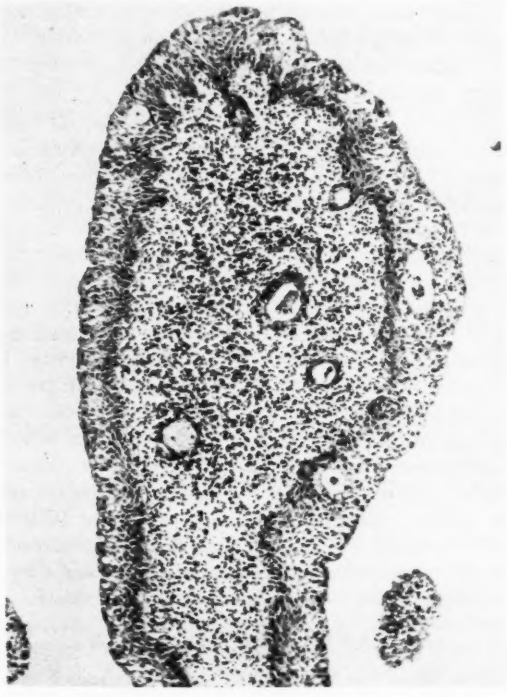

FIG. 1. Low power view (x 130) of inflammatory polyp of cervical mucosal origin. This polypous lesion is not neoplastic and seldom undergoes malignant transformation.

found no typical changes in the stratified squamous epithelium attributable to pregnancy in the 32 cases which presented grossly visible cervical lesions, and they concluded that "when the criteria for the diagnosis of cancer of the cervix are present, this diagnosis is valid, irrespective of whether the patient is or is not pregnant."

In my study the hormonal influence of pregnancy on cervical lesions is not evaluated inasmuch as the history of pregnancy often was not recorded with the biopsy data. It is pointed out, however, that a squamous cell papilloma or a gland cell papillary adenoma may be first observed by the physician at the time of the first physical examination of a young patient in her first pregnancy. Familiarity with these neoplastic lesions should preclude unwarranted radical treatment in such instances.

CONDYLOMATOUS POLYPS

The condylomatous formations or so-called venereal warts on and about the cervix uteri are classified as reactive verrucous hyperplasias of probable viral etiology. They frequently occur as multiple lesions of different proportions. The squamous epithelium covering these lesions becomes coarsely papillated and greatly thickened as a result of hyperplasia of the

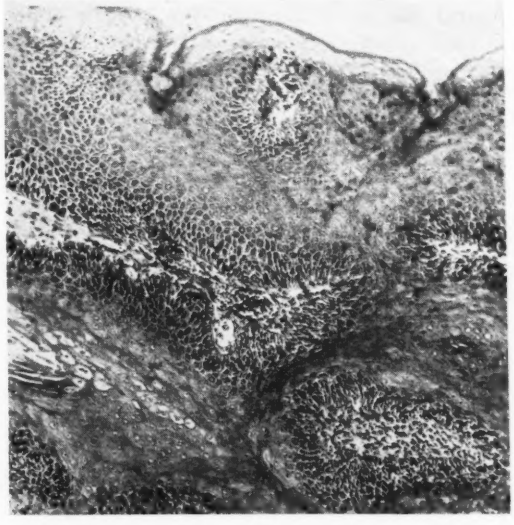

FIG. 2. Low power view (x 115) of condylomatous polyp of the cervix uteri. Note hyperplasia of the prickle cell layer. This lesion is considered to be of viral etiology.

middle or prickle cell layer mainly with associated so-called "acanthosis" and is infiltrated with inflammatory cells of all types (fig. 2). The stromal tissue is relatively scanty, rather vascular, and likewise is heavily infiltrated with inflammatory cells. In my study of cervical polypous lesions, the condylomatous formations exhibited no causal relationship to neoplastic disease.

SQUAMOUS CELL PAPILLOMAS

The papilloma of squamous epithelial origin[3] occurs on the portio vaginalis as a localized pedunculated or sessile neoplastic proliferation and is similar to epidermal and squamous papillomas in other locations. Grossly this neoplasm is readily visible through a speculum as a small burrlike structure, somewhat resembling a wart with elongated papillations (fig.

3). It may protrude from the external os and usually is attached at or near the squamocolumnar junction by a broad base (fig. 4). Occasionally the growth possesses a stalk and rarely it is multiple. The lesion measures 3 to 7 mm. in diameter and varies from 2 to 4 mm. in height. It is relatively soft and consequently is palpable with difficulty. It is likely to be missed on pelvic examination without the aid of direct vision.

Histologically this lesion is composed of squamous epithelium covered papillations of varying sizes. There is a tendency towards hyperkeratinization of the outer layers, and there is no hyperplasia of the middle or prickle cell layer as occurs in condylomatous lesions. The basement membrane is regular and very well restrained. The stalk or stromal tissue is scanty and usually is not infiltrated with inflammatory cells.

Cytologically, the exfoliated squamous epithelial cells resemble those of the normal cervix, and they exhibit the same cornification behavior. The cells may be hyperkeratinized, and occasionally they may be seen in small irregular plaques, resembling cast off papillation tips.

Twenty-three cases of squamous cell papilloma of the cervix uteri were recorded during this five year cervical lesion study. Fifteen or 65.2 per cent of these cases occurred in patients under 30 years of age, and 11 of these were observed in young women in the 17 to 21 age group. None were observed in patients past 42 years of age. In 2 cases the age unfortunately was not given.

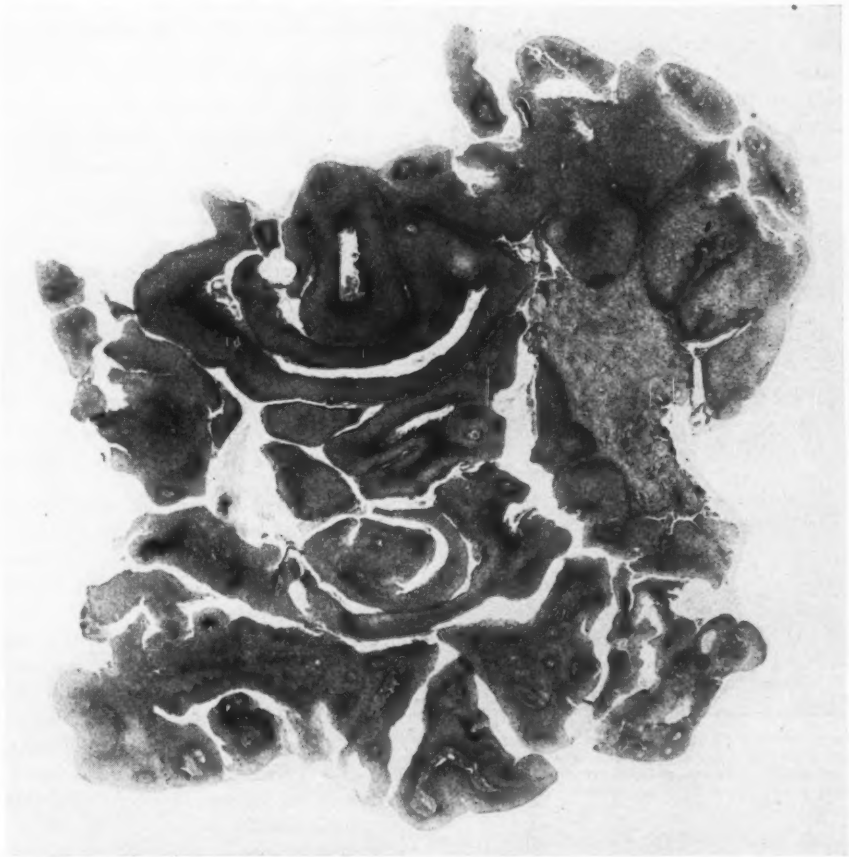

FIG. 3. Very low power view (x 94) of squamous cell papilloma of the cervix uteri showing papillary arrangement of growth.

There were no symptoms recorded in any of these cases which could be considered as having been due to the papillomatous growths. The lesion was found accidentally on physical examination and was completely extirpated in terms of an excisional biopsy in the majority of the cases.

There have been no recurrences in the 21 patients whose lesions were excised for biopsy and were classified as benign squamous cell papillomas of the cervix

on histologic analysis. The 2 cases which exhibited atypical cellular behavior along the basement membrane and which were classified as incipient or preinvasive carcinomatous lesions likewise have not recurred following a more radical local excision of the lesion.

Experience in surgical pathology indicates that the majority of cervical specimens for biopsy are taken from patients in the fourth and fifth decades of life and postmenopausally; relatively few biopsy specimens come from younger women—particularly unmarried ones in the second and third decades of life. For reasons difficult to understand, it appears not to be a routine or customary procedure to inspect visually the cervix uteri on physically examining young women, sometimes including first pregnancy patients; consequently, an accurate incidence for this interesting lesion, apparently a lesion peculiar to the younger age group, cannot be established.

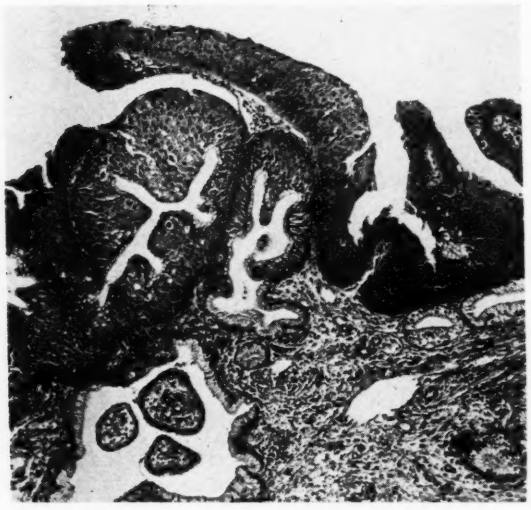

FIG. 4. Low power view (x 120) of squamous cell papilloma of the cervix uteri located at the squamocolumnar junction. This lesion is neoplastic and appears to possess malignant potentialities. Note the increased cellular activity above the intact basement membrane.

Observations thus far seem to suggest that the squamous cell papilloma of the cervix uteri, originally a benign neoplasm, may be capable of undergoing malignant transformation, possibly eventuating into the papillary type of squamous cell carcinoma of the cervix uteri occasionally seen. It is difficult to explain the fate of this lesion on any other basis since it has not been observed in older women and since lesions of this type in other locations do not spontaneously regress but instead frequently become carcinomatous.

GLAND CELL PAPILLARY ADENOMAS

Factual data relating to the papillary adenoma of cervical glandular epithelial origin indicate that this neoplastic lesion is quite rare (fig. 5). In my statistical review of 6,000 cervical biopsies only 3 such lesions were encountered. Each was classified as a benign lesion with probable malignant potentialities. One of these occurred in a 29 year old nulliparous woman, the lesion being first observed on routine physical examination. The second was removed as an excisional biopsy specimen from a 30 year old woman. The age was not recorded in the third case.

Inasmuch as papillary adenomas in other locations exhibit a tendency to undergo malignant transformation, one may well speculate whether the fungating polypoid adenocarcinoma of the cervix uteri, constituting approximately 3 per cent of all cervical carcinomas, is not occasionally preceded by a benign papillary adenomatous growth. The papillary adenoma is located in the cervical canal, protrudes at the os, is readily visualized in the cervical canal with the aid of a speculum, and should be removed as an excisional biopsy specimen, further surgical treatment depending on adequate histologic appraisal of the lesion.

SUMMARY AND CONCLUSIONS

The polypous and papillomatous lesions of the cervix uteri are discussed, and a usable classification based on histogenetic criteria is presented.

In the order of frequency, these lesions are as follows:

1. The simple inflammatory polyp constitutes the most common polypous lesion of the cervix uteri and occurs most frequently in older women. This lesion seldom undergoes malignant transformation.

2. The polypous or pseudopapillomatous irregularities due to trauma are classified as repair phenomena and bear no favored specific causal relationship to neoplastic disease.

3. The polypous hyperplasias of pregnancy are classified as probable hormonal responses and affect the endocervical glandular mucosa chiefly. They are not considered to be causally related to malignant disease.

4. The condylomatous polyp is considered to be a reactive hyperplasia of probable viral etiology and does not exhibit neoplastic tendencies.

5. The squamous cell papilloma of the cervix uteri, a neoplastic growth occasionally observed in young women, is appraised as exhibiting a tendency to eventuate into squamous cell carcinoma.

6. The gland cell papillary adenoma of the cervix, a rare neoplastic growth in the cervical canal of younger women, is considered to be the forerunner

of one type of papillary adenocarcinoma of the cervix.

Definitive histologic analysis of the polypous and papillomatous lesions of the cervix uteri is requisite to the correct classification of these lesions and yields significant information relating to adequate treatment and prognosis.

Further study, and especially longtime follow-up observation of patients from whom neoplastic papillomatous lesions have been removed, is urged in order that more factual information regarding the life behavior of these rare but important lesions may be gathered.

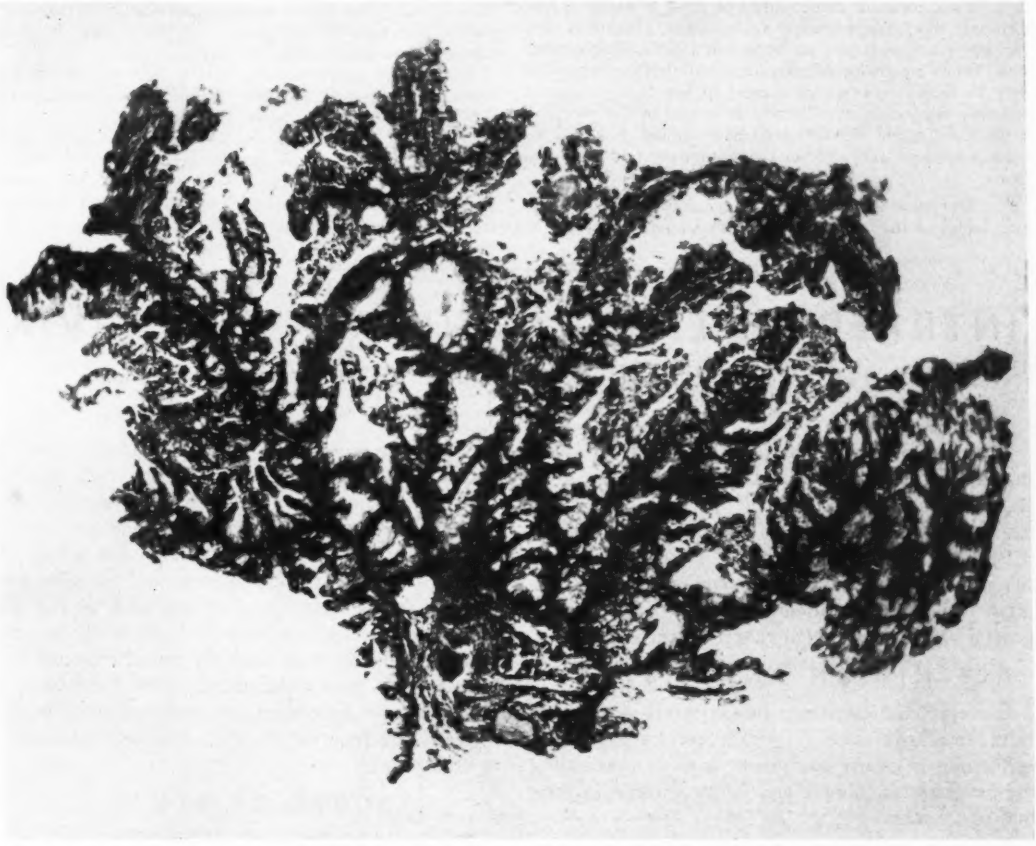

FIG. 5. Very low power view (x 123) of gland cell papillary adenoma of the cervix uteri. Note the delicate papillations extending from the stalk. This lesion is neoplastic and is quite rare.

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ABSTRACT OF DISCUSSION

DR. G. F. GOFF, Dallas: I am pleased with the attempt to bring order out of confusion by setting up a rather exact classification of these various lesions based upon the histogenic characteristics of the lesions themselves. It seems logical to group under the term "polyp" those lesions resulting from an irritative reaction or a localized inflammatory hyperplasia, whereas the term "papilloma" seems well used for those lesions which are "localized neoplastic surface epithelial proliferations." This grouping might well be the first step in making us more alert and accurate in the separation of the benign from the potentially malignant cervical lesions.

It is interesting to note that of 1,409 simple inflamma-

tory polyps studied out of a group of 6,000 cervical biopsies only 3 showed malignant change.

The mucosal irregularities due to trauma I think demonstrate the remarkable ability of body tissues in their attempt to repair themselves under adverse circumstances and changed relationships.

The hyperplasias of the cervical epithelium during pregnancy constitute one of the most interesting groups of lesions. They have attracted the attention of many able investigators, but as yet there is no finality of opinion as to what may be the ultimate potentialities of some of these lesions. Certainly the marked changes in endocrine physiology during pregnancy must play an important part in their production. When squamous cell papillomas and papillary adenomas may be found in a young woman in her first pregnancy, certainly the possibility of detecting lesions that, theoretically at least, might become malignant should make us all more suspicious and alert in the examination of these patients.

Dr. Goforth's description of a squamous cell papillomatous lesion of the cervix occurring in younger women (20 to 30 years) is an interesting observation. His detailed study and description of 23 such cases apparently constitutes an original contribution of considerable note. It is worth noting that 11 of these lesions occurred in young women under the age of 21 years.

I think Dr. Goforth makes an excellent point when he cautions us to make more careful examinations of the cervix by inspection and biopsy in all women, young as well as old.

It is interesting to note that out of 6,000 cervical biopsies only 3 lesions were classified as gland cell papillary adenomas. These were classified as benign lesions with probable malignant potentialities. Two of the 3 were in women less than 30 years of age. If the tendency to malignant change in this type of lesion means anything, we should be more careful in our excision and more cautious in our follow-up where lesions of this type are found.

If one were to take a group of 100 cases of carcinoma of the cervix, about 97 of them would be the squamous cell type, and 3 of them the gland cell type.

It is interesting to note that Dr. Goforth's finding of 23 lesions of squamous cell papilloma as compared with 3 lesions of the papillary adenomatous type in 6,000 cervical biopsies would follow fairly closely the general frequency trend of carcinoma of the cervix.

INTRAEPITHELIAL CARCINOMA OF CERVIX

JOHN J. ANDUJAR, M.D., F.C.A.P., Fort Worth, Texas

CANCER of the cervix is attracting increasing attention. It should. Two recent surveys,[7, 12] show a five year mortality of 97 and 100 per cent respectively in stage 4 cases. Contrast this with the 0 per cent mortality of stage 0 (intraepithelial) patients, and it is easy to see why physicians are increasingly focusing their attention on cervical cancer in general and intraepithelial cancer in particular.

DEFINITION AND HISTORY

Intraepithelial carcinoma of the cervix is that very early anaplastic state in which cervical squamous epithelium is clearly malignant, without penetrating the basement membrane and hence without infiltration or invasion.

Synonyms are in situ carcinoma; noninvasive cancer; noninfiltrating carcinoma; intramucosal cancer; Bowenoid, precancerous, blastomatoid, or carcinomatoid change of cervix (all unfortunate terms); and superficial carcinoma (a term I used in the early years of this study and then discarded). I believe that "intraepithelial carcinoma" has much appeal, and passage of time is reinforcing this deserved popularity. Only "carcinoma in situ" rivals it in frequency of usage.

Although many are under the impression that J. Jadassohn in 1918 first described intraepithelial cancer, it was recorded almost ten years earlier by Schottlander and Kermauner. In spite of these early descriptions, it remained for Walter Schiller to command our attention in the late 'twenties. There is no doubt whatsoever that the rise of cytology has given tremendous impetus to this interest, and we must also proclaim our indebtedness to the zeal of our lay friends in the cancer control fields. Most of the cases published to date cover only the period from the late 'thirties and 'forties. In recent years more than a thousand cases have been reported, and undoubtedly for each case reported there are hundreds undetected or unrecorded.

SCOPE OF STUDY

This paper tabulates and reviews 57 selected cases of intraepithelial cancer studied between 1937 and 1952. These patients came to my attention in the practice of pathology in the University Hospital, Little Rock; Memorial Hospital, New York City; Harris and City-County Hospitals, Fort Worth; and in the Fort Worth Medical Laboratories. The actual number of times such diagnosis was recorded was somewhat larger, but for reasons of conservatism only 57 could be reported here. For example, 11 cases were treated with radium and/or roentgen ray after diagnosis and are not included. I agree with Winship and others[19] that such cases are open to question as to whether invasive carcinoma was also present and cured by

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radiation. Another case was not reported since it was a borderline lesion which was reported by one renowned pathologist on the east edge of Manhattan as "intraepithelial carcinoma," while on the same slide an equally renowned pathologist on the west edge of state, I still consider basal cell activity benign. As regards epidermization or squamous metaplasia, I agree with Townsend and Stembridge that this lesion has no significant anaplastic potentialities. Neither am I much preoccupied with the sharp oblique line of demarcation, long or short, acute or obtuse, between normal cervical cells and the cancer area. Nor do I

TABLE 1.—*Summary of 57 Cases of Intraepithelial Carcinoma of Cervix.*
(All were white, nonpregnant, living women; in every instance either the entire cervix or more than one particle of cervix was available for biopsy. None received roentgen ray or radium. No other cases were included.)

Case	Year	Marital Status	Age	Method of Diagnosis	Treatment	Follow-Up
1	1937	M	44	Multiple biopsy	Hysterectomy	Alive and well
2	1938	M	51	Hysterectomy	No further	Alive and well
3	1938	S	38	Hysterectomy	No further	Alive and well
4	1939	M	36	Hysterectomy	No further	Died 1943 (other cause)
5	1940	M	49	Multiple biopsy	Remov. cerv.	Alive and well
6	1940	M	43	Hysterectomy	No further	Alive and well
7	1940	M	31	Hysterectomy	No further	Alive and well
8	1941	M	42	Trachelectomy	No further	Cytol. neg. now
9	1941	M	21	Hysterectomy	No further	Alive and well
10	1942	S	33	Multiple biopsy	Coniz. & caut.	None
11	1942	S	29	Multiple biopsy	Cauterization	None
12	1944	M	46	Hysterectomy	No further	Alive and well
13	1944	M	41	Multiple biopsy	Cauterization	Repeat Pap.* neg.
14	1944	M	46	Multiple biopsy	None	None
15	1944	M	61	Hysterectomy	No further	Alive and well
16	1944	M	38	Multiple biopsy	Conization	Cytol. neg.
17	1944	M	33	Conization	Hysterectomy	Died 1951 (Accid.)
18	1945	M	48	Multiple biopsy	None	Repeat Pap.* neg.
19	1945	M	41	Hysterectomy	No further	None
20	1945	S	25	Trachelectomy	Hysterectomy	Alive and well
21	1946	M	32	Hysterectomy	No further	Alive and well
22	1946	S	32	Multiple biopsy	Radical hyst.	Alive
23	1946	M	43	Multiple biopsy	Hysterectomy	Died 1949 (other cause)
24	1946	M	46	Conization	Hysterectomy	Alive and well
25	1946	M	29	Hysterectomy	No further	None
26	1947	M	41	Conization	Hysterectomy	Alive and well
27	1947	M	36	Multiple biopsy	Coniz. & caut.	Repeat Pap.* neg.
28	1947	M	44	Multiple biopsy	Cauterization	None
29	1948	M	37	Multiple biopsy	Hysterectomy	Alive and well
30	1948	M	29	Hysterectomy	No further	Alive and well
31	1948	S	32	Hysterectomy	No further	Alive and well
32	1948	M	44	Conization	Hysterectomy	Alive and well
33	1949	M	35	Hysterectomy	None	None
34	1949	S	34	Multiple biopsy	Wertheim	Alive
35	1949	S	41	Conization	No further	Cytol. neg. now
36	1949	M	32	Biopsies	Conization	Repeat Pap.* neg.
37	1949	M	42	Conization	No further	Cytol. neg.
38	1950	M	36	Biopsies	Hysterectomy	Alive and well
39	1950	M	32	Multiple biopsy	Cauterization	Semiannual Pap.* neg.
40	1950	M	46	Multiple biopsy	None	None
41	1950	M	40	Conization	Hysterectomy	Alive and well
42	1950	M	31	Multiple biopsy	Hysterectomy	Alive and well
43	1950	M	36	Hysterectomy	No further	Alive and well
44	1950	M	49	Conization	Radical hyst.	Died 1951 (other cause)
45	1950	S	42	Multiple biopsy	Coniz. & caut.	Pap.* neg. since
46	1951	M	47	Multiple biopsy	Hyst. after 14 mo.	Hyst. Mar. 1952
47	1951	M	36	Conization	None	Cytol. neg.
48	1951	S	35	Hysterectomy	No further	Alive and well
49	1951	M	43	Pap.*; mult. biop.	Cerv. stump removed	(Prev. hyst.) Pap.* neg.
50	1951	M	34	Conization	None	Refused hysterectomy
51	1951	M	40	Multiple biopsy	Conization	Pap.* neg. since
52	1951	M	41	Hysterectomy	No further	Alive and well
53	1951	M	40	Multiple biopsy	Coniz. & caut.	Cytol. neg. now
54	1951	S	49	Conization	Hysterectomy	Alive and well
55	1952	M	27	Conization	None yet	None yet
56	1952	M	31	Multiple biopsy	Hysterectomy	None yet
57	1952	M	51	Multiple biopsy	None yet	None yet

*Pap.=Papanicolau smear.

the same island concluded "no evidence of carcinoma." Three cases discovered at autopsy were excluded since follow-up was of course precluded.

I have not cared to ascribe any anaplastic properties to basal cell hyperplasia. Admitting that, as Galvin[6] and Jones[10] showed, carcinoma may later follow this subscribe to Younge's[20] thesis that 100 per cent of the cells from basement membrane to corneum must be involved in obvious anaplasia. Actually, if this dictum promulgated by Hertig and others is to be followed, then physicians should require that 100 per cent of cells in larynx, conjunctiva, glans penis, mouth, and

other mucous membranes should be involved before diagnosis of carcinoma, yet no one has seriously advanced this prerequisite to diagnosis in these other areas.

I tend to favor TeLinde's[18] general criteria of justifiability without subscribing to his point of view that extension down into glands is invasion. As to the other points, if the cells are obviously malignant, if they have lost their polarity, if they show abnormal mitoses, if they have numerous mitoses, if they bulge the basement membrane, if they grow down into open glands filling them solidly—if these criteria are met, I believe that the *slide* shows intraepithelial carcinoma. Far more difficult is the proof that the *patient* has intraepithelial cancer; many of the changes are adjacent to or just above areas of infiltrating cancer. No biopsy is here reported in which the entire specimen consisted of a single fragment; in fact, in most instances the entire cone was studied or the uterus itself was available.

The question of special stains for cancer cells is intriguing. Stimulated by the work of McManus and others[13] I have tried periodic acid Schiff techniques, as well as variants of colloidal platinum, radiophosphorus, iodine, and various glycogen and aniline group dyes. The results have been rather disappoint-

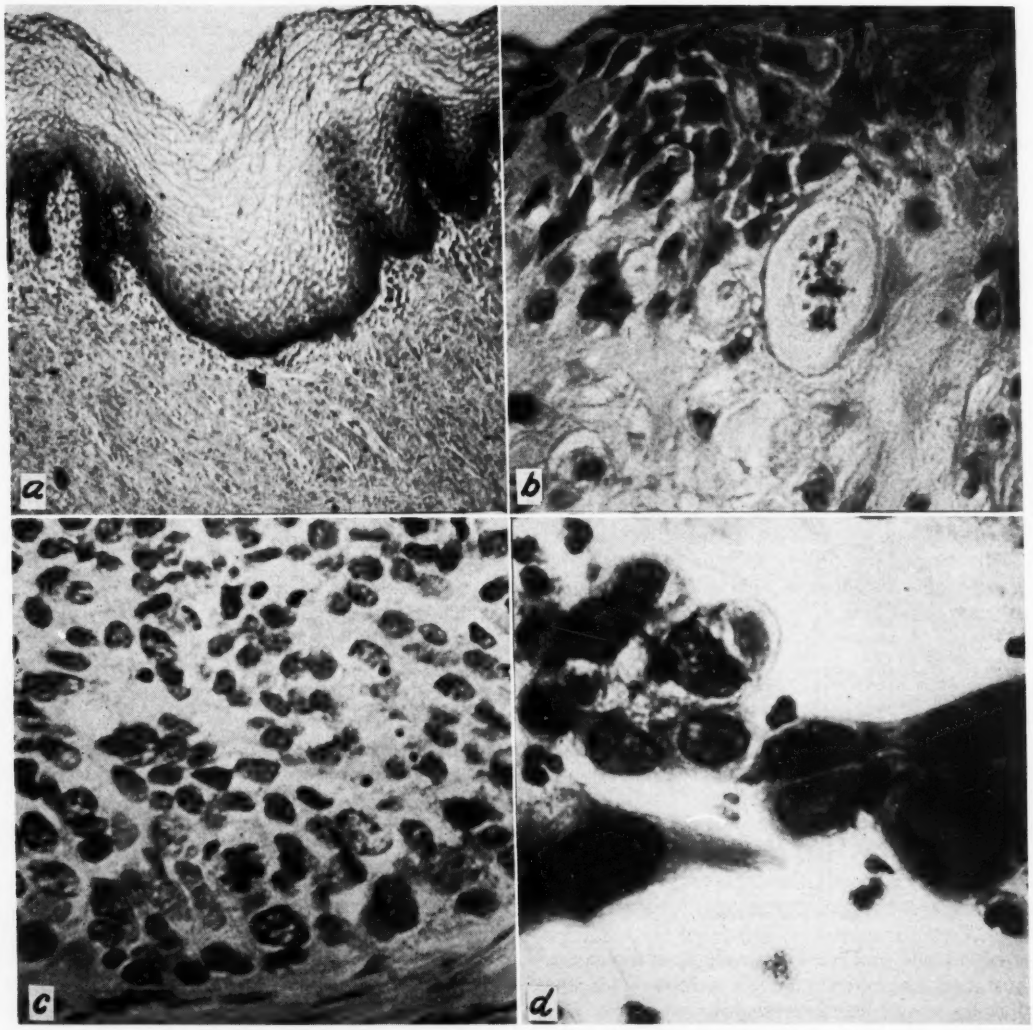

FIG. 1a. A normal cervix at the vault (x 75). Note the regularity of cells and the uniformity of rows of epithelium.

b. A detail of intraepithelial cancer (x 300). Note the huge bizarre cell of carcinoma close to well differentiated corneum cells.

c. An intraepithelial cancer (x 300). Note the anaplastic cell near the basement membrane and loss of polarity.

d. Cancer cells in a smear from intraepithelial carcinoma (x 450).

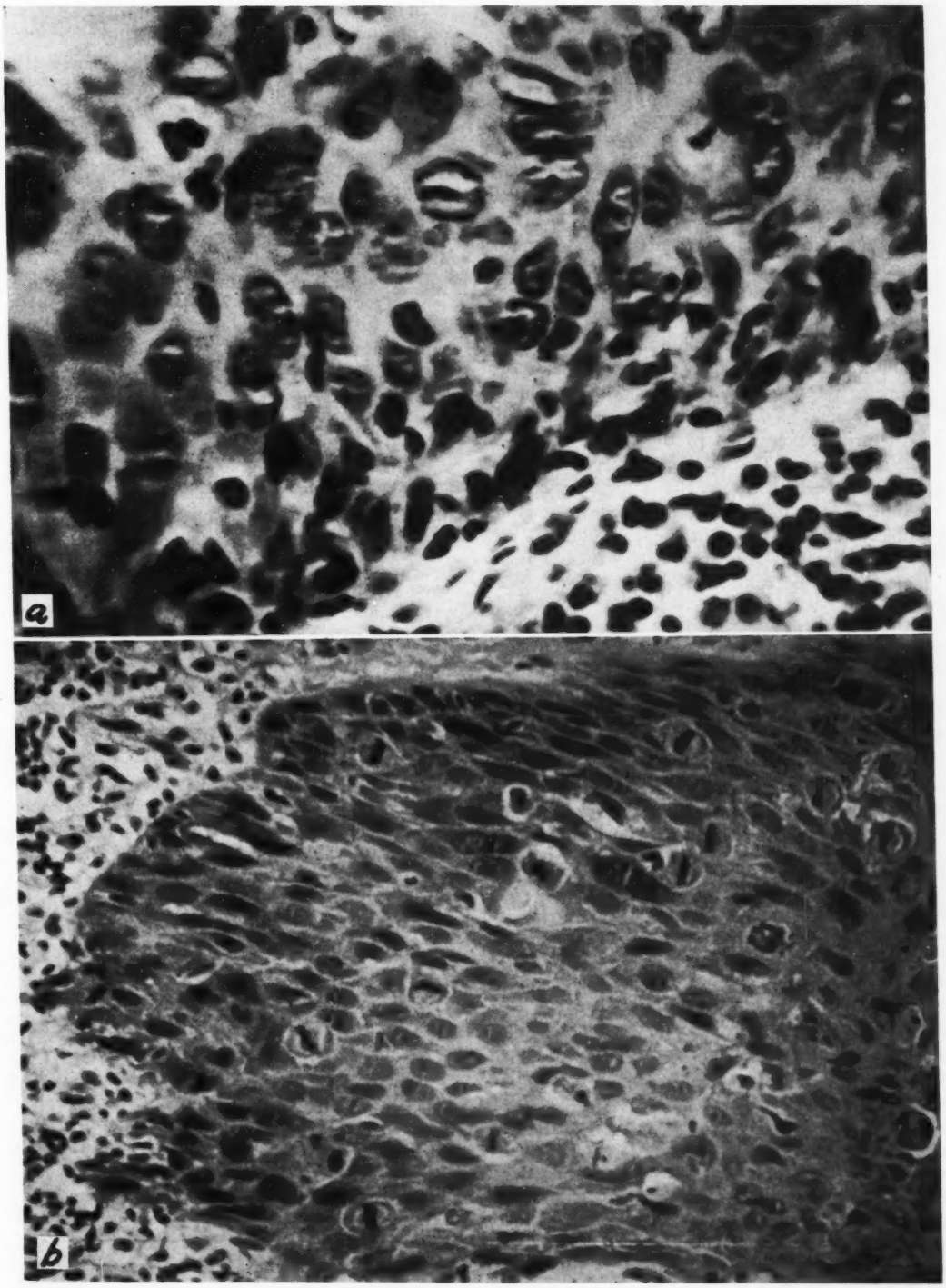

FIG. 2a. Detail of intraepithelial carcinoma in the full thickness of cervical mucosa (x 400).
b. Replacement of a gland by solid downgrowth of superficial cancer cells (x 400). It should be emphasized that the basement membrane of the gland is intact; this is not true infiltration or invasion.

ing to date, since cells of many states other than true anaplasia give similar or identical reactions to true carcinoma. Another keystone in my criteria is the fact that no case is here reported in which there was a concomitant pregnancy. In fact, I have been and am tremendously reluctant to issue such a diagnosis in the face of pregnancy. A careful exhaustive study of Epperson and others[4] together with similar investigations will shed new light on normal and abnormal changes in the pregnant cervix; meanwhile, I will continue to follow an ultraconservative policy.

Returning to the problem of diagnosis from a single fragment of cervix submitted, I find this especially worrisome. My policy is to request additional specimens; the wisdom of at least 4 biopsy samples at definite areas of the squamocolumnar junction has been clearly demonstrated by the excellent work of Foote and Stewart.[5] Of the 27 cases they reported, 25 would have been discovered by 4 biopsy specimens taken at 3, 6, 9, and 12 o'clock. Whenever it is impossible to remove the entire squamocolumnar area by cone biopsy, it is urged that at least these 4 biopsy samples should be considered as a minimum specimen.

RESULTS

From the 57 cases collected (table 1) certain definite statements can be made. The patients were white women; 11 were single and 46 had the title "Mrs.," but no data are available as to their divorced or widowed state. None were pregnant. Nearly all were private patients. The youngest was 27 (case 55); the oldest was 61 (case 15). The average age of these patients was 38.7 years, and the median 36. Of the 57, exactly 20 were between 31 and 36 years of age, which corresponds roughly with the figures of Diddle, Ashworth, Brown, Bronstad,[3] and others. The much earlier age incidence of noninfiltrating over invading cancer has been noted before and is possibly a strong pillar of support for the thesis that most invasive cancers are preceded for approximately ten years by intraepithelial cancer. As will be noted by a glance at table 1, the great majority of these cases were studied in recent years, to the surprise of no one who has noted the tremendously increased interest in cervical cancer of the past five years. As to incidence, I unfortunately can report only the data for the past three years; in this group there were 20 intraepithelial cancers in 4,261 cervices, or an incidence of 0.47 per cent of examined cervices. This is similar to the 0.44 per cent reported by Kaufmann and Ross[11] or the 0.45 per cent recorded by Stevenson and Scipiades[16] but does not compare with the 3.9 per cent of Pund and Auerbach.[15]

In the entire series, the original diagnosis was made on multiple biopsy 26 times, total hysterectomy 17 times, conization 12 times, and trachelectomy twice. Of the 57 cases, only 1 (case 49) occurred in a cervical stump, and that after subtotal hysterectomy many years before. Another patient (case 46) has disquieting cellular changes eleven months after multiple cautery was done. Only one of these cases (case 26) was originally diagnosed elsewhere, and I am indebted to Dr. Charles T. Ashworth for his enthusiastic and generous cooperation in correlating his original diagnosis with my semiannual follow-up studies.

The problem of evaluation of these patients in later years is difficult indeed. If the uterus has been removed, either for diagnosis or treatment, it is not easy to state just what is happening in the recent and late postoperative periods. To state that the patient is alive and well clinically and cytologically is at times only part of the story. Although long-term follow-up studies are of course not available in the recent cases, it is interesting to note that no gross evidence of infiltrative cancer is present in any one of the 45 followed. It should be noted that one of the patients (case 17) not followed died of accidental causes seven years following hysterectomy, and no autopsy was obtained. Three others died from nonaccidental causes but with no evidence of infiltrative carcinoma insofar as could be determined. A total of 8 patients have eluded all efforts at follow-up.

DISCUSSION

This subject can never be approached without immediately involving one's self in discussions of cytologic studies. I have tried to maintain a conservatively progressive attitude toward such studies, feeling that they have definite value, especially in follow-up of patients, and adding to our knowledge of noninvasive cancers and to a definite extent in case finding. Insignificantly few of these biopsies were associated with Ayre stick studies, and then only in recent years.

I continue to regard cytologic investigations as a useful adjunct when properly employed and properly evaluated. I agree, however, with Haynes, Mengert and others[9] in a recent review of 6,816 cytologic studies (with 112 carcinoma cases found, only 36 totally unsuspected) that the advantages are offset by difficulties of interpretation and economic drawbacks. Their average cost per cytologic study for materials and technologists alone was $2.22 per patient, and that presumably in a tax-exempt institution with no allowance for professional fees. I strongly agree with their thesis, "First, it must be impressed on everyone that under no circumstances should any definitive therapeutic program be undertaken on the basis of a positive cytological smear alone."

I make no attempt to follow Ruth Graham's[8] cytologic differentiation of these lesions into two classes, those likely to invade and the more "benign" cancer cells. In fact, all of these diagnoses are based on paraffin sections of fixed tissues; cytologic studies, when available at all, were usually incidental rather than of case finding type.

As regards the additional question of sponge biopsy, I think that the procedure is not of vital importance in intraepithelial cancer, and in my limited experience sponges have proved rather disappointing for these types of noninfiltrating lesions.

A number of additional points can best be covered by the question and answer procedure.

1. Is this state really cancer? The ranks of pathologists who insist on infiltration or invasion to diagnose carcinoma have thinned to the vanishing point. It is now two decades since Broders[2] coined the phrase "carcinoma in situ" of the cervix and warned that pathologists must no longer use an intact basement membrane as the dividing line between benign and malignant lesions. The League of Nations (International) classification lists this state as stage 0 cancer of the cervix.

2. Is this cancer diagnosable with the unaided eye, or with palpation? Categorically I may say "no." The careful studies of many workers have shown many cases in presumably normal cervices, and even when concurrent diseases are present, they are often of minor importance. Only once in the entire 57 cases was the clinical opinion "intraepithelial carcinoma," and the laws of chance must be considered. The diagnosis is completely and entirely a microscopic problem.

3. Does this state occasionally reverse to a completely benign phase? This is a delicate problem. Younge[20] cited several cases, but his use of terms is confusing: "We are seeing an increasing number of patients with anaplasia of the cervix... in whom the anaplasia regresses. These cases are examples of the squamous epithelium becoming almost malignant but regressing to normal." Pathologists have for decades followed Hansemann in using the word anaplasia as synonymous with malignancy, a definition still in the medical dictionary. Our gynecologist friends confuse us when they list it in the glossaries as "associated with cancer but does not mean cancer."[14] Younge ventured the possibility that disappearance of anaplasia is due to repair after trauma of biopsy, or perhaps to vitamin diet or hormone change, decrease in infection, or disappearance of some unknown carcinogen. I have noted only one instance of spontaneous regression and that after long standing mycotic infection was eradicated. This case was not included in this reported series.

Ayre[1] pointed out the reversibility of cellular change in treatment of diseased cervices with Aureomycin. Joseph Skapier recently has reported 6 cases of clear-cut spontaneous reversion of intraepithelial cancer. Does this mean that cancer cures itself or that Aureomycin cures cancer? No one will say that flatly. Knowledge of cellular pathologic physiology will have to improve greatly before this question can be answered categorically.

4. What about reversion after pregnancy? I freely admit that the cellular pattern in normal pregnancy is alarmingly similar to intraepithelial carcinoma, and yet complete regression occurs. Stout[17] suggested "after the delivery the lesion may apparently disappear. If, however, the lesion is true carcinoma in situ it will reappear at some time." Fortunately, this is not of the essence in this lesion, so that it is reasonably feasible to wait for later developments in the differentiation of these two puzzling states.

5. What about "grade" of cancer? I can see no advantage to attempts to grade an intraepithelial lesion. There is no demonstrated correlation between cellular atypia here and the course of the patient. All are agreed that the natural history of these lesions encompasses a great number of years. Yet the rapidity of conversion to infiltrative carcinoma is apparently in no way related to the amount of anaplasia of any given cervix.

6. How soon does invasion actually occur in this state? By the usual opinion, it varies between one and twelve years, but perhaps an average of eight to ten would seem conservative. Conclusions from the present series of 45 who have been followed would not be justified since most had hysterectomies and in the majority the follow-up is of too short duration.

7. Do nuns have relative freedom from intraepithelial carcinoma? This concept recently championed by Fabien Gagnon is intriguing. Perhaps emotions are factors in causing cancer; if so, the psychiatrist should have a field day.

8. What about management and treatment? Here, the issues wax hot and the pathologist, caught between the crossfire of surgeon and radiologist, retreats hastily to the sanctity of the laboratory. He peeps out only long enough to point to the obvious fact that Wertheim's and radical hysterectomies are totally unnecessary, assuming the diagnosis is correct. Radiation in the childbearing age also appears unnecessarily radical, again assuming the diagnosis is correct. Beyond the menopause there is probably room for argument between radiologist and surgeon, but this state is relatively uncommon in the 50's and 60's, or later. Simple cauterization or conization leaves much to be desired in the way of therapy, and yet it

is surprising to see how often they have been successful, according to the accumulated literature on this subject. However, I will continue to condemn these procedures as being dangerously inadequate. Far more important in management is the procurement of multiple biopsies repeated to the limit of toleration of patient and physician. One should not hesitate to resort to cone biopsies, trachelectomies, and if necessary, hysterectomy, when the diagnosis is to be entertained. At the risk of stressing ad nauseam the importance of correct diagnosis, I would like to repeat that the most important single factor in this entire problem is correct diagnosis. Women must be unceasingly educated and, in fact, propagandized to see their doctors; the physician must be continuously alerted to make the diagnosis, using the conservative pathologist as his pillar. And last, it should not be forgotten that no pathologist can ever tell what is wrong with the patient; he can only make a diagnosis on that part of the patient's tissues submitted to him.

SUMMARY AND CONCLUSIONS

A total of 57 cases of intraepithelial carcinoma of the cervix, covering the period from 1937 to 1952, is reviewed. No cases treated by radium or roentgen ray are included, nor are borderline states nor lesions discovered at autopsy included, so that this is a selected series. During one recent three year period the incidence was 0.47 per cent of the cervices examined.

The average age of the patients was 38.7 years, the median 36 years, with minimum and maximum limits of 27 and 61 respectively. Of the 57, 11 were single and 46 married. One died from an accident, 3 from nonconnected illnesses, and 8 could not be followed. Of the remaining 45, there has been no evidence of recurrence, although in most instances follow-up is of too short duration for statistical significance.

The questions of criteria, diagnosis, reversibility, and treatment are briefly discussed.

The importance of multiple or cone biopsies is stressed with the emphasis on the paramount necessity of excluding possible adjacent invasive carcinoma.

This study was made possible by the generous cooperation of many clinicians, to whom indebtedness is gratefully acknowledged.

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P. O. Box 1118.

ABSTRACT OF DISCUSSION

DR. H. J. SCHATTENBERG, San Antonio: Carcinoma in situ of the cervix has become established as a well recognized pathologic entity. Since the cervix is an anatomic structure which can be easily viewed and examined, it is only reasonable to assume that much of the early work was carried out on this organ. Carcinoma in situ, however, has been described in the stomach, bronchi, endometrium, and intestines. Actually all cancers must begin in some such fashion. In the past, considerable differences of opinion have existed as to what constitutes an actual carcinoma of the cervix. Norris, Martzloff, and Novak believed that as long as the epithelial cells did not show invasive properties, they should not be regarded as cancerous. This is partially supported by the prolonged latency period, ten years or more, in these cases, or the experiences of Fred Stewart in his report, "Experiences in Spontaneous Regression of Neoplastic Disease in Man."* Finally, this raises the point, when is a cell malignant and when is it benign. This, of course, must be left to the judgment of the experienced histopathologist.

DR. A. C. BRODERS, SR., Temple: I am much interested in Dr. Andujar's able presentation of intraepithelial carcinoma of the cervix. This type of carcinoma in the skin was described by Borst in 1904 and by Jadassohn in 1926. In 1932 I coined the term "carcinoma in situ" and at that time placed in its category, in addition to the intraepidermal epithelioma of Borst and Jadassohn, such conditions as Paget's disease of the breast, Bowen's disease of the skin, and MacCarty's secondary cytoplasia. As far back as 1867 Waldeyer, in describing the development of carcinoma of the

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stomach, called attention to a change in the cells of the glandular tubules which in the light of present-day knowledge would be interpreted as preinvasive carcinoma or carcinoma in situ. By recognizing carcinoma of the cervix uteri in the intraepithelial, preinvasive, or in situ state, pathologists are able to play a leading role in saving the lives of thousands of persons who might die from a neoplasm that inherently possesses a high average of malignancy.

Preliminary Observations on Retroperitoneal Lymphadenectomies

JOHN A. WALL, M.D., and HIRAM ARNOLD, M.D., Houston, Texas

AT the M. D. Anderson Hospital for Cancer Research, radiotherapy is considered the choice treatment for most patients with carcinoma of the cervix. Those patients with stage 1 lesions and certain patients with early stage 2 lesions are treated by radium placed in the vagina and cervix. Of course, individualization of therapy is considered to be of prime importance, and exceptions to radium treatment are made in certain patients with a particular type neoplasm. In general, however, patients whose lesions are thought to be confined to the cervix or immediately adjacent areas are not given roentgenotherapy to the parametrial zone.

As a clinical research project, the staff has performed retroperitoneal lymphadenectomies in a small series of patients with carcinoma of the cervix in stage 1 or early stage 2. This project was not undertaken to prove the value of lymphadenectomy as a recommended therapeutic procedure; rather we hoped to uncover answers to some of the controversial questions regarding the natural course of squamous cell carcinoma of the cervix and its resulting lymph node metastasis.

First, we believe that this study will provide a more detailed knowledge of the precise anatomy of the lymphatic drainage of the cervix. It is vital that all therapists who deal with these patients be familiar with the locations of the regional lymph nodes, especially if a plan for external irradiation must be formulated. External irradiation should be directed to the lateral aspect of the broad ligament and the uterosacral ligament and to the main group of nodes along the course of lymphatic spread.[3] These nodes are the hypogastric nodes, located in the bifurcation of the common iliac artery; the external iliac group, along the pelvic brim; and the nodes lying close to the obturator foramen. The most important node lies along the lateral pelvic wall, midway between the hypogastric node and the obturator foramen, about 5 to 5.5 cm. from the midline at the level of the internal os. The presacral nodes might be included, although it is doubtful that they can be reached adequately with any roentgen-ray technique. In our series the above lymph node groups were tagged with small dural clips. By this means, we were able to prove the node-bearing areas were included in the external roentgen-ray beam.

A second reason for our study of retroperitoneal lymphadenectomy is to develop a more accurate means of determining the extent or clinical stage of the disease. Certainly, a more reliable choice of therapy can be made and a more accurate prognosis can be determined if a lesion is properly classified. For instance, a lesion on clinical examination may appear definitely confined to the cervix or possibly to the medial borders of the paracervical triangle. However, lymphadenectomy may reveal that this lesion has spread to the retroperitoneal nodes. Such a neoplasm may then be reclassified. This avoids unjust blame on the radiotherapist, because we know that radium alone cannot eradicate lymph node metastases, even though it may completely destroy the primary lesion.

Thus, it is the presence or absence of lymph node involvement that seems to be the critical factor in determining therapy and prognosis. Approximately 30 per cent of patients with stage 1 carcinomas of the cervix will have lymph node metastasis, as will 40 per cent or less of those patients whose lesions are classified as early stage 2. Some investigators believe that all patients with stage 1 or stage 2 lesions should receive roentgen-ray therapy in addition to radium. By so doing, they are needlessly subjecting 70 per cent of patients with stage 1 lesions to the hazards of deep roentgen-ray therapy. Tentatively, we have chosen to treat these patients with radium alone, followed by retroperitoneal lymphadenectomy, so that we might carry out studies in experimental research.

When such a therapeutic plan has been executed, we are then afforded an opportunity for direct measurement of the dosage delivered to the lymph nodes by the radium.[4] Using a scintillation counter, we have

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From the M. D. Anderson Hospital for Cancer Research.

been able to ascertain dosage distribution during lymphadenectomy while the radium was actually in place in the cervix and vagina. Thus, we were able to determine the optimum position of the radium sources.

Last, we hope to accrue statistics regarding the therapeutic effect of surgical extirpation of involved lymph nodes which are proved positive by histologic examination. We are particularly interested in the results of retroperitoneal lymphadenectomy on obese patients with pendulous abdomens. It is difficult to deliver a cancerocidal dose of external irradiation to involved nodes in these women. Consequently, surgical removal of these nodes would seem to be an advance in therapy, although present statistics indicate that probably only 15 to 20 per cent of such patients can be salvaged by this procedure. However, survival rates may be augmented by postoperative roentgenotherapy, when nodes are positive. Meigs and Brown have proved that intense roentgenotherapy preceding radical hysterectomy is exceedingly hazardous.[2] The liability of radionecrosis is great when this sequence of therapy is carried out. Surgery, however, is usually not followed by deposition of dense fibrous tissue, which is produced by roentgen-ray therapy. Therefore, we have instituted deep roentgenotherapy within a week to ten days *following* retroperitoneal lymphadenectomy in those patients with positive evidence of metastasis.

MATERIAL STUDIED

Retroperitoneal lymphadenectomy was performed on 20 patients with squamous cell carcinoma of the cervix, ranging in age from 27 to 57 years. There were 10 patients with stage 1 lesions, 9 with stage 2 lesions, and 1 with an unclassified cancer of the cervical stump. Sixteen of the lesions were categorized as grade 3 microscopically, and 4 were grade 2.

In this particular group of patients, radium was given preoperatively, and the total dosage ranged from 7,020 milligram hours to 12,960 milligram hours. Point A was calculated to have received 7,800 to 8,340 gamma r, while point B received 2,120 to 3,240 gamma r.* Bilateral retroperitoneal iliac lymphadenectomy was performed four weeks after completion of this radium treatment. Microscopic examination of the dissected nodes did not show evidence of significant radiation changes.

Point A is theoretically 2 cm. above the external os and 2 cm. lateral to the midpoint of the endocervical canal; point B is 2 cm. lateral to point A on the lateral wall of the pelvis. The dose at point A represents an estimate of the effect at an approximate area in the paracervical triangle. The dose at point B is an index of the lateral throw-off of the ionization effect. However, both these theoretical points are subject to wide variation depending on the individual anatomy in addition to the distortion which is a direct consequence of the neoplasm in question.

OPERATIVE PROCEDURE

Routine preoperative preparations were carried out, and in addition 500 cc. of whole blood was ordered to be available. The procedure was not found to be a shocking operation. However, the blood is a wise precaution because of the large vessels in the operative field. A Foley catheter was employed to keep the bladder empty. The patient was placed in the supine position and tilted slightly away from the side being operated upon to afford better exposure. The head of the operating table was lowered, and the patient assumed a Trendelenburg position. Spinal anesthesia combined with Pentothal Sodium intravenously was the anesthesia of choice; however, inhalation anesthesia is not contraindicated.

A modified herniorrhaphy incision as described by Nathanson proved sufficient to obtain proper exposure.[6] Starting at the pubic spine, the incision was carried to the vicinity of the anterior superior iliac spine, parallel to and about 2.5 cm. above the inguinal ligament. The external ring was located, and the fibers of the external oblique fascia were cut in the line of the skin incision. The conjoined tendon medially and the fibers of the internal oblique and transversalis muscles laterally were cut along the line of the skin incision, caution being exercised to lift these structures up from the large vessels. The round ligament was then isolated, clamped, cut, and sutured. This allowed for easy exposure of the deep inferior epigastric vessels. The vessels medial to the round ligament were then isolated, clamped, cut, and ligated near their origin from the iliac vessels.

Following this, the peritoneum and abdominal structures were gently and bluntly pushed medially and superiorly to expose the iliac vessels and the iliopsoas muscle. The bladder lies centrally and inferiorly and had to be protected from undue traction. With the use of moist packs and retractors the ureter was exposed; it is attached to the under surface of the peritoneum and had to be gently retracted with the peritoneal sac contents. The areolar tissue was loosened to expose the iliac vessels extending from the inguinal ligament to the common iliac area, with their nodes and lymph vessels closely adherent.

The lymph nodes were dissected from the external iliac vessels, starting near the inguinal ligament and lateral to the external iliac vessels; the deep circumflex iliac vein was spared, if possible. The nodes in the junction of the hypogastric and external iliac vessels were then extirpated by blunt dissection with pusher sponges. The branches of the hypogastric artery were identified, and the ureteral node at the junction of the uterine artery and ureter was removed. The obturator nerve was identified at this time and was followed to the obturator foramen, where any nodes present were removed. The principal node along

the course of the obturator nerve is much more prominent than the lymph tissue in the obturator foramen itself. Block dissection is desirable, but is not usually possible. The vessels can be mobilized to allow complete dissection on all sides. Care must be taken in dissecting the lymphatic tissue from the obturator foramen, because there is a rich plexus of veins in this area.

The areolar tissue at the edge of the block was then clamped with small brain clips, tied, and cut. These brain clips were also used for hemostasis in deep areas and to mark the node-bearing area for future study of external irradiation as previously described. The wound was then closed anatomically by herniorrhaphy technique, using quilting cotton. No drains were employed.

In some cases, India ink has been injected into the paracervical tissue prior to operation in an effort to help identify the nodes and as a means of studying the route of metastatic dispersion. One-half of 1 cc. of this solution, diluted one part to ten and autoclaved, has been employed. However, this solution has been of little or no help in identifying the lymphatic tissue. Only a few of the nodes were observed to contain the ink on gross examination, and no consistent route of drainage was noted. We have concluded that there is no advantage in attempting to mark the nodes in this manner.

Our operative time for the bilateral dissection has been approximately two hours, and we have found no reason to do this operation in two stages as a routine choice. However, one of our cardiac patients developed irregularities during the dissection of the first side, and the second side was postponed for two weeks at the anesthetist's request. With this exception there have been no operative complications.

Postoperatively, these patients have been up on their feet on the first day. They have voiced few complaints, except for tenderness in incision sites. One patient had a mild wound infection, and another developed unilateral lymphedema of the thigh and leg. The risks from surgery, therefore, are minimal, and prognosis is altered favorably. It has seemed to us that there is less danger to the ureter by the retroperitoneal approach than by the intra-abdominal route.

SUMMARY

Improved five-year results in stage 1 and stage 2 squamous cell carcinoma of the cervix may be obtained through the proper management of the primary and secondary lymph nodes. Retroperitoneal lymphadenectomy may be used as a guide for external irradiation and for prognosis. To a lesser extent, it may be employed as a therapeutic measure in certain patients. Direct measurements can be made to determine the ability of radium to sterilize individual nodes. Further study with such a procedure should be of value in establishing the respective contributions to be gained from surgery and radiation in early cervical lesions. The technique of retroperitoneal lymphadenectomy has been discussed, and the findings presented in 20 patients with stage 1 and stage 2 squamous cell carcinoma of the cervix who previously had been treated with adequate doses of radium.

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2310 Baldwin Street.

ABSTRACT OF DISCUSSION

DR. JAMES H. HERROD, Austin: Dr. Wall and Dr. Arnold have found 2 patients out of 17 with positive nodes. It would be of value to know from which group these positive nodes were found and the calculated dosage of radium that was received by this group.

The overall dosage of radium that the essayists have delivered has been much larger than is commonly used by most therapists. They have not given the method of radium application so it is difficult to judge the amount of radiation received by the various areas of the pelvis and in this way determine how much radiation was received by the tumor-bearing nodes.

In the tumor clinic in Austin, we have been using combined roentgen ray and radium for all cases of carcinoma of the cervix except for carcinoma in situ in which total hysterectomy is performed. If there is evidence of invasion after the surgical specimen is studied, these patients receive roentgen-ray therapy. An attempt is made to deliver 3,000 r units to the node bearing area by roentgen ray. The patient is then given radium, 50 mg. in a tandem in the cervical canal and 25 mg. in a colpostat in each lateral fornix. Immediately following the insertion of radium roentgenograms of the patient in anteroposterior and lateral projections are made and the time required to deliver a dose of 6,000 gamma r to a point 2 cm. lateral to the internal os and to increase the radiation at a point 2 cm. from the lateral pelvic wall is calculated and the radium is then removed. This dosage of radium is repeated in four to six weeks; we believe this second application has increased our rate of cures, although our series is small and insufficient time has elapsed to give a definite answer.

The procedure set forth by Dr. Wall and Dr. Arnold is not one to be done by the novice. A careful study of the pelvic anatomy should be made before an attempt such as

this is made, for one unfamiliar with the pelvis could easily get into a difficult situation.

This procedure is also timely as I believe that in the next few years the treatment of carcinoma will be greatly changed by the use of radioactive isotopes, and it will be of value in comparing the results of the two types of treatment.

Functioning Ovarian Tumors

TERRELL SPEED, M.D., Temple, Texas

DURING the past two decades, much interest has developed concerning a group of ovarian tumors which have been shown to be capable of elaborating sex hormones. The production of male or female hormones on an unphysiologic basis renders these tumors capable of effecting spectacular biologic results. The marked sexual precocity in a child or masculinizing changes in a woman previously normal comprise rather sensational pathophysiology and demand prompt explanation.

In considering these so-called functioning ovarian neoplasms, three tumors often included in the group have been purposely omitted. These are the strumal tumor, the dysgerminoma, and the Brenner tumor. The latter two have never been proved to have definite hormonal function. The strumal tumor may have a thyroid-like function, but its hormone, of course, is not ovarian in origin or type.

Depending upon the type of hormone produced, these tumors are considered as feminizing or masculinizing. The granulosa cell tumors and the theca cell tumors, in the main, constitute the feminizing group. The masculinizing growths are the arrhenoblastoma and the masculinovoblastoma. The latter tumor, due to its uncertain histogenesis and its confusing histologic picture, has also been designated as adrenal-like tumor of the ovary, adrenocortical carcinoma of the ovary, virilizing lipoid cell tumor of the ovary, hypernephroma of the ovary, and luteoma.

HISTOGENESIS

These functioning tumors of the ovary are all derived from cells dating back to the early embryologic development of the ovary. The predominant opinion is that the feminizing tumors originate in or from the ovarian mesenchyme. Therefore, their derivation must be traced back to a progranulosal or prothecal stage. Since many of these tumors appear as a mixture of thecal and granulosal cells, the term "feminizing mesenchyomas" has been suggested.[12] This mixture of cell types would certainly indicate a common origin. The possible relationship between ovarian stromal hyperplasia and these tumors has been pointed out.[16] There is conclusive histochemical evidence to indicate that the production of estrin by granulosa cell tumors is really carried on by theca-like cells.[10] The rare pure granulosal cell tumor has shown no hormonal content.

The most commonly accepted theory for the origin of the arrhenoblastoma is that proposed by Meyer.[11] He thought that the tumor arises from originally male directed cells which persist in the medullary portion of the ovary. From these cells, tumors having testicular architecture may arise and produce the male hormone. A teratomatous origin also has been suggested but not widely accepted.

The origin of the other masculinizing tumor is even more speculative. Its uncertain derivation has been responsible for the great variety of names applied to it. Rottino and McGrath[15] suggested that this group of apparently related tumors be designated "masculinovoblastoma." Since embryologically, adrenal and ovarian cortical tissues develop in close proximity, adrenal tissue in the ovary could result and give rise to such a tumor. Origin of the tumor by metaplasia of the stromal or other indifferent cells of the ovary is a well supported theory.[1, 7] The development of adrenal-like proliferations in the ovaries of adrenalectomized squirrels has been interpreted by some as proof of the adrenal rest theory and by others as evidence favoring ovarian mesenchymal metaplasia.[1, 2] That the tumor could arise from the corpus luteum, as has been suggested, hardly seems likely if one considers the high degree of differentiation of the lutein cell and its normal function.[12]

Teilum[17, 18] has invoked much thought and controversy by classifying this tumor as an androgen-producing androblastoma and as being homologous with the interstitial cell tumors of the testis.[9] He called attention to the conformity between the histologic, hormonal, and clinical characteristics of this tumor and the testicular Leydig cell tumors.

PATHOLOGY

The feminizing tumors show individual variation from the gross as well as the microscopic standpoint.

From the Scott and White Clinic.

Read before the Section on Obstetrics and Gynecology, Texas Medical Association, Annual Session, Dallas, May, 1952.

The granulosa cell tumors vary widely in size but average about 10 cm. in diameter. Ninety per cent are unilateral, small, and solid. The cut surface may be described as liver sausage-like in appearance. There may be large yellowish areas which usually represent luteinization. Cystic degenerated areas are present only in the larger tumors. Concomitant findings in the older age group usually include uterine enlargement either from fibroids, myohypertrophy, or endometrial carcinoma.[5, 6, 20] Cervical carcinoma is less commonly present. Associated breast carcinoma has been reported. Microscopic appearance at first suggests carcinoma. However, in most cases the cells are fairly orderly. They show variable grouping, sometimes about a lumen, sometimes in columns, and occasionally in strands that are almost sarcomatous in character. Consequently, these arrangements have been designated respectively as the folliculoid, cylindroid, and sarcomatoid tumor types.[19] It should be mentioned here that the histologic pattern may bear no relationship to the subsequent clinical course of the tumor. Histologically benign tumors may be biologically very malignant.

The theca cell tumor is usually unilateral and looks grossly like a fibroma. It is usually 5 to 10 cm. in diameter and is encapsulated. Typically, the color is yellow although it may vary from a grayish yellow to brown. Microscopic examination shows a cellular composition of spindle-shaped elements containing lipoid, suggesting the tumor's relationship to connective tissue or stromal structure. Some of the tumors show the addition of granulosa cells. Mitotic figures are rare and the tumor is almost invariably benign, only about 5 malignant cases being recorded.[14]

Grossly, the arrhenoblastoma is a solid tumor of small to moderate size although some have been reported as large as a man's head. The cut surface is grayish, often with yellowish or hemorrhagic areas. The typical tumor shows a microscopic resemblance to the testis and is designated the tubular adenoma of Pick. Other tumor types show varying degrees of undifferentiation and depending on the degree of anaplasia are referred to as the intermediate and sarcomatoid groups. In general, masculinization is more universal in the less differentiated types. Morphologically some of the undifferentiated tumors may closely resemble a granulosa cell tumor. In such cases, the clinical and pathologic findings must be correlated to make the diagnosis correctly.

The masculinovoblastoma is a moderate sized, unilateral, and usually encapsulated solid tumor. The cut surface exhibits a friable yellow tissue. Microscopic study reveals large, clear polygonal cell groups in pseudo-alveolar fashion suggesting the structure of the adrenal cortex. In the malignant cases, variation in the size and shape of the cells along with mitotic figures are characteristic. An atypical microscopic picture at times makes it impossible to differentiate this tumor from a metastatic hypernephroma or a luteinized granulosa cell tumor. Histologically, malignant tumors rarely metastasize unless they are grossly invasive.

CLINICAL MANIFESTATIONS

If one remembers that the feminizing group of tumors are estrogen-producing, it is not difficult to understand their biologic effects. Obviously, the symptoms produced will depend upon the age of the patient when the tumor develops. Granulosa cell tumors may develop at any age. Sixty per cent develop after the menopause; 5 to 10 per cent occur before puberty, leaving about one-third of the tumors to appear in the childbearing years.

When such tumors develop in young children, evidence of precocious puberty appears. Premature menstruation, hypertrophy of breasts, and hair growth in the axillary and genital areas are the most noticeable signs. The periodic bleeding is not associated with ovulation and this differentiates it from bleeding due to extra-ovarian factors. If the tumor becomes active during the menstrual years, the effects are merely quantitative and are those of hyperestrinism. Thus, the menstrual function may or may not be affected. Menstrual excess may occur as would be expected. However, normal menstruation or even amenorrhea of several months' duration may be the result. In the postmenopausal patient, the uterus enlarges and the endometrium becomes hyperplastic. Periodic anovulatory bleeding simulating menstruation is likely to occur. In this age group, the breasts, unlike the uterus, have lost their sensitivity to estrin and do not change.

Theca cell tumors do not appear before puberty and about two-thirds of them occur after the menopause. The symptoms from these tumors are essentially the same as those recorded in the granulosa cell tumors in the corresponding age group. The reported malignant cases have all shown ascites.

The virilizing tumors occur predominantly in the childbearing years. Their production of the male sex hormone causes endocrine changes which can be divided into two phases. The first phase comprises symptoms which are not definitely masculine but represent a diminution of characteristics usually regarded as feminine. Among these are amenorrhea, decrease in the size of the breasts, and changes from feminine contour. Following this phase are symptoms which are regarded as definitely masculinizing. A hairy growth appears on the face, male configuration of pubic hair is usually evident, the voice deepens, and there is hypertrophy of the clitoris. This is the

sequence in the typical case of arrhenoblastoma although variations in degree are common.

If to the masculinizing symptoms of arrhenoblastoma are added the features of Cushing's syndrome, a clinical suspicion of masculinovoblastoma is tenable, provided, of course, an ovarian tumor is palpable. Some of these tumors do not produce the Cushing syndrome, however, and in others the symptom complex is incomplete. The masculinovoblastoma is a very rare tumor and most patients exhibiting the Cushing signs will ultimately be found to have an adrenal cortical tumor or hyperplasia.

DIAGNOSIS

The functioning ovarian tumors as a group are rare. The granulosa cell tumors comprise about 2 per cent of ovarian neoplasms. The theca cell tumors and arrhenoblastomas are comparatively rare, about 75 to 100 being reported. Only about 28 authentic cases of masculinovoblastomas are in the literature. Because of their rarity, the preoperative diagnosis of these tumors entails a careful history and physical examination as well as available laboratory aids. The feminizing tumors occurring during menstrual life are hardly distinguished from other ovarian tumors. If, however, precocious puberty occurs in conjunction with an ovarian mass, a granulosa cell tumor may be strongly suspected. Other causes of premature development are more common, however, and a normal appearing ovary should not be removed on suspicion that it might contain a functioning tumor.

In the postmenopausal age group, the occurrence of periodic bleeding from a slightly enlarged uterus in conjunction with an ovarian mass, is rather indicative of a feminizing tumor. If curettage produces hyperplastic endometrium, the suspicion of the clinician increases and exploratory laparotomy is warranted. However, it must be borne in mind that such hyperplasia may occur in the absence of an ovarian tumor since estrin, presumably adrenal in origin, is sometimes found in the urine of postmenopausal women.

In a woman, previously normal, developing defeminizing or masculinizing changes, the palpation of an ovarian mass permits the presumptive diagnosis of masculinizing tumor. On the basis of chance alone, the tumor would be an arrhenoblastoma since, though rare, it is much more common than the adrenal-like tumor or masculinovoblastoma. However, to suspect one of these tumors, the symptoms should be of recent origin and not date back to puberty as is often the case. Sex hormone determinations are usually of little value in these tumors. However, careful study of urinary excretion of certain fractions of 17-ketosteroids may eventually prove of value in differentiating adrenal from ovarian syndromes of masculinization.[3]

TREATMENT

The treatment of the entire group of functioning tumors is, of course, surgical. It is only in deciding the extent of the operation that a question arises. In young persons, especially children, conservative surgery is the therapy of choice. Luckily, in the young patients the tumor is usually small and well encapsulated and the removal of the involved adnexa is sufficient. Periodic observation is very important in view of the clinical behavior of some of these tumors.

Fortunately, functioning tumors occur preponderantly in the older women where conservative operation is neither indicated nor wise. Except for possibly the theca cell group, these neoplasms possess sufficient malignant potentiality to warrant removal of both adnexae and the uterus. In the feminizing tumors of this age group, the more radical operation may be prophylactic as well as curative since endometrial carcinoma and uterine fibroids might also develop later.

PROGNOSIS

Removal of a granulosa cell tumor in a child is followed by a prompt regression of the signs of precocious puberty. Pregnancies have occurred in the younger patients after tumor removal. These tumors do not often metastasize nor recur in the young patient. In cases of recurrence, the tumor was usually poorly encapsulated in a patient of the older age group. The clinical behavior of these tumors is somewhat erratic, however. Jones and TeLinde[8] reported 3 cases of recurrence after sixteen to nineteen years. Unquestionably in some cases, surgery, no matter how radical, will not be curative regardless of how complete the tumor removal may seem. The recurrence rate previously has been thought to be 5 to 10 per cent, but recent surveys of the literature indicate a rate of 25 to 30 per cent.[4]

The theca cell tumor has generally been regarded as benign. Since it occurs in older women, the indicated operation, hystero-salpingo-oophorectomy, effects a certain cure in the self limited cases. Furthermore, prophylaxis against future uterine neoplasms is obtained. The rarely reported malignant thecomas have metastasized early and therapy has been uniformly unsuccessful.

In the masculinizing group, the defeminizing changes regress promptly after tumor extirpation, but the disappearance of the true masculinizing signs is much slower and often is incomplete.

The arrhenoblastoma is clinically benign in almost 80 per cent of the cases but always must be considered as potentially malignant since some recurrences

have been reported.[13] Henderson in a recent study of worldwide case reports found 12 recurrences and death in 78 cases.[4] Only 1 death from recurrence of a masculinovoblastoma has been reported in the proved group of about 28 cases.[2]

SUMMARY

Functioning ovarian tumors are relatively rare. Their histogenesis is uncertain. The feminizing tumors produce significant symptoms only in the premenstrual and postmenopausal years. The masculinizing tumors cause varying degrees of defeminization which usually regresses after removal of the tumor. Both groups of tumors, with the possible exception of the masculinovoblastoma, possess a malignant potential, and should be surgically treated with this characteristic carefully considered.

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ABSTRACT OF DISCUSSION

DR. G. G. PASSMORE, San Antonio: The need for progress in the field of ovarian tumors, especially malignancies, is becoming increasingly obvious. Recent advances in diagnosis and treatment of cervical and endometrial cancer are being reflected in improving cure rates, but we have no such advances or improved rates in ovarian cancer. It is through increased thought and use of accumulated knowledge as presented by Dr. Speed that someone will be stimulated to give us this progress. The upstate New York statistics show that for each 100 new cases of ovarian malignancy reported, there are 88 deaths, and it seems that only those discovered by accident, without symptoms, are cured.

The group that Dr. Speed has described, however, do give symptoms and signs early enough to allow early surgery and cure. The feminizing signs are not distinct in menstruating women but command immediate attention in the more common postmenopausal patient and in children. Let me repeat Dr. Speed's warning that other causes of precocious puberty are more common and that symptom alone does not justify operation.

The masculinizing signs are dramatic, but the differential diagnosis is more difficult here since adrenal cortical hyperactivity from hyperplasia or tumor can give an almost identical picture and is much more common. The total world count of masculinizing tumors by E. K. Blewett in Austin when he added the most recent one this year was 126 arrhenoblastomas and 28 masculinovoblastomas. Masculinizing signs must be of recent occurrence to indicate either ovarian tumor or adrenal hyperactivity. Defeminizing signs indicate pituitary failure rather than ovarian or adrenal dysfunction. The malignancy of masculinizing tumors had been estimated at 10 to 14 per cent, but recent reports give 25 to 27 per cent.

The pathologic picture of all this group may be very confusing, so the pathologist should be given all possible clinical data to help in classification.

The masculine changes are slight and may be absent in the more highly differentiated tumor which shows definite tubules; they are more pronounced in the undifferentiated ones that may resemble sarcoma with only rare effort at cellular organization into tubules. In the masculinizing tumors, malignancy has been evident at operation by rapid growth, metastasis, ascites, adhesions, invasion, or bilateral tumor in all but 3 of those proved to be malignant. In women who want future pregnancies, conservative operation is indicated if the tumor is grossly benign. Secondary operation can be done if pathologic malignancy is proved. Pregnancies have occurred before the development and after the removal of these tumors.

After menopause any ovarian tumor must be removed promptly since at least 40 per cent of them will be malignant. Of course, any solid ovarian tumor larger than 4 cm. in diameter at any time of life is dangerous.

HOARSENESS AS DANGER SIGNAL

Dr. Robert W. Ard, Hagerstown, Md., writing in *Today's Health*, warns that hoarseness, while usually only an unpleasant condition which everyone experiences occasionally, can be a dangerous signal indicating more than laryngitis when the condition persists longer than two weeks.

Respiratory infections are not the only cause of hoarseness, the author points out. "Other diseases, notably cancer, tuberculosis and syphilis, may give rise to this voice difficulty. Unlike laryngitis, these vicious illnesses are not of brief duration."

MASCULINIZING TUMORS OF THE OVARY

E. K. BLEWETT, M.D., F.A.C.S., Austin, Texas

MASCULINIZING tumors of the ovary may be divided into two main groups, the arrhenoblastomas and the virilizing lipoid cell tumors of the ovary. The arrhenoblastoma is a rare tumor of the ovary and in reviewing the literature a total of 126 cases could be collected, including the case report given in this review. The virilizing lipoid cell tumor of the ovary includes those tumors variously designated as luteinomas, adrenal rest tumors, interstitiomas, and masculinovoblastomas. Only 28 authenicated tumors of this group have been reported through 1951.

ARRHENOBLASTOMA

In 1905 Ludwig Pick[27, 28] first described the arrhenoblastoma. His tumor was well differentiated and was called "adenoma tubulare testiculare ovarii." In 1907 Schickele[31] reported a similar ovarian tumor. In 1915 Bell[3] described the first case reported in England. In 1900 Davis[6] in this country reported on a patient that he had operated upon in Episcopal Hospital in Philadelphia in 1895. His patient developed a deep voice, hirsuitism, and amennorhea at the age of 26 years. At surgery a multilocular cystic growth of the ovary was removed and four years later a recurrence of the tumor reappeared in the incision, abdominal wall, and peritoneum. However, the hospital records in this case report have been lost and Pick is credited with the first report of an arrhenoblastoma. Moots[21] reported a case in the United States in 1921, and this was followed by the report in 1933 of Taylor, Wolfermann, and Krock.[34]

Robert Meyer[20] in 1931 demonstrated the virilizing nature of this tumor and coined the term "arrhenoblastoma." He classified the tumor into three types: (1) *the highly differentiated tumor,* originally described by Pick and designated as testicular adenoma, in which there is a rather perfect reproduction of the male testicular apparatus; (2) *the highly undifferentiated variety,* in which the histologic picture is essentially that of a sarcoma; and (3) *the intermediate group,* in which all gradations may be encountered from the differentiated to the undifferentiated arrhenoblastoma.

In 1937, the first male hormone assays on a patient with arrhenoblastoma were reported by Szathmary.[33] Baldwin and Gafford[1] reviewed the accumulated 32 cases of arrhenoblastoma in 1936 and added another. Krock and Wolfermann[18] summarized the 70 cases of arrhenoblastoma that had been reported up to 1941. Iverson[11] reviewed 91 case reports of arrhenoblastoma in 1947 and added 3 of her own. Javert and Finn[12] in a complete review of the literature in 1951 collected 118 cases, including 5 unreported cases (1 each seen by Boltuch, Falk, and Weed; 2 by McIntire). They also reported 3 additional cases, bringing the total to 121 through 1949.

Four additional authentic cases[13, 17, 26, 36] have been reported in the literature, which, with the addition of the case reported in this paper, brings the total to 126 cases through 1951. This is an approximate figure since several authors have enthusiastically reported the same case and, of course, others have not recorded their cases.

Case Report

Mrs. F. G., a 38 year old Spanish-American woman, was admitted to the gynecologic service of Brackenridge Hospital on July 10, 1950. Her complaints were abnormal growth of hair on body, extremities, and face, and a changing voice. Her history revealed that she had had three full term normal pregnancies and deliveries, the last delivery being May 31, 1947. One month postpartum, in 1947, the patient's physician inserted into the uterus radium which remained in position for five days before it was removed. This procedure was performed in the home and the physician had since died so that the records were not available. The patient had complete amenorrhea following the radium therapy. Menarche had occurred at 11 years of age. Prior to the last pregnancy her menstrual cycles had always been very regular, occurring every twenty-eight days, with a normal three day flow. In 1945 her left eye was enucleated for microphthalmia and since that time she had worn a prosthesis.

In January, 1950, the patient was informed by her friends that her voice was becoming husky. Two months later the patient began to notice that she could no longer sing. Previously her voice had always been high pitched. About February the patient began to notice an abnormal growth of hair on her face and a marked increase of thick, long, black, coarse hair on her thighs and arms and a noticeable hair growth on her breasts and abdomen. In May she noticed that her breasts had become smaller. Her libido had increased appreciably during the past six months. She also had gained an unknown amount of weight.

Physical examination revealed a moderately obese, intelligent, Spanish-American woman. Her hair was coarse and thick. There were numerous long hairs growing over the upper lip and chin, and the extremities were covered with long, thick, coarse, black hairs. There was a typical male distribution of pubic hair up to the umbilicus and there were numerous hairs about the areola of both breasts. A pelvic examination revealed a parous introitus with good anterior and posterior vaginal wall support. The clitoris was thought to be slightly larger than normal. The cervix was clean and conical. The uterus and the adnexae could not be definitely outlined because of the obesity; however, it was

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thought that the left ovary was somewhat increased in size. The blood pressure was 110/68. The remainder of her physical examination was essentially negative.

Laboratory Reports.—A blood study made July 10 showed a hemoglobin of 13.7 Gm. There were 4,410,000 red blood cells and 8,200 white blood cells, with 73 per cent segmented neutrophils, 24 per cent lymphocytes, 2 per cent monocytes, and 1 per cent eosinophils. July 11 the Kline exclusion reaction and the Mazzini test both were negative. The basal metabolic rate was –6 per cent. Blood cholesterol was 194 mg. per 100 cc. Urinalysis of a catheterized specimen gave the following results: specific gravity, 1.032; albumin negative; sugar, negative; microscopic examination, negative. The nonprotein nitrogen level July 15 was 39.5 mg. per 100 cc. of blood. A roentgenogram of the skull made July 10 was negative, and one of the chest made July 14 was negative except for a small calcification in the left hilus. A flat plate of the abdomen showed it to be normal, with the kidney shadows being normal in size and shape. July 24 a cystoscopic examination and retrograde pyelogram revealed a normal bladder; both kidneys were well visualized and appeared normal; the ureters were normal. The same day Papanicolaou smear of urine taken from both ureters revealed normal renal epithelial cells.

It was decided that an abdominal exploratory operation was indicated, so this procedure was performed July 25. Exploration revealed normal kidneys and adrenal glands. The left ovary measured about 5 cm. in diameter and was solid in consistency. The right ovary was small and atrophic. Both tubes and the uterus were grossly normal. Because of the left ovarian solid tumor and the signs of defeminization and masculinization, it was thought that this left ovarian tumor was an arrhenoblastoma. Consequently, a total hysterectomy and a bilateral salpingo-oophorectomy was performed. The postoperative convalescence was uneventful and the patient was discharged from the hospital August 5.

Pathologic Report (By Dr. Phillip T. Flynn).—Both tubes, both ovaries, and the uterus were examined.

The left ovary consisted of a 5 cm. round, slightly flattened, encapsulated ovary which on cut section showed a tumor occupying nine-tenths of the ovarian parenchyma (fig. 1a). The tumor measured 4.7 cm., was circumscribed, and bulged on cut section. The tumor extended to the capsule, but did not invade it. The tumor consisted of a convoluted, yellowish-brown, soft, 1.5 cm. peripheral rim of tissue, and a central translucent, gelatinous area which was sharply demarcated from the peripheral area of the tumor. A small rim of white ovarian parenchyma partially encompassed the tumor. Attached to this ovary was a 5 cm. convoluted oviduct measuring 0.4 cm. in diameter with a smooth peritoneal surface and a delicate fimbriated end.

The right ovary measured 2 by 1.5 by 1 cm. and had a white fibrous parenchyma with a circumscribed 0.4 cm. white nodule bulging beneath the cortex. The associated 4.5 cm. long oviduct measured 0.5 cm. in diameter and had a smooth peritoneal surface. The uterus measured 7 by 5 by 3 cm. and had an external os surrounded by a 1 cm. cuff of smooth mucosa. The anterior and posterior surfaces were covered by a triangular piece of peritoneum.

Multiple sections of the ovarian tumor studied microscopically showed a peripheral capsule of connective tissue which had not been invaded by the underlying tumor cells (fig. 1c). The tumor itself presented a variety of patterns which consisted for the most part of spindle-shaped nuclei lying in spindle-shaped cells which were fairly compactly placed together and contained an extremely scant amount of cytoplasm (fig. 1d). The nuclei were vesicular and had the chromatin evenly dispersed and concentrated on a nuclear membrane. The nucleoli were extremely small and usually eccentrically placed. The tumor cells occasionally tended to form abortive glands and occasionally formed long ribbons of cells which intertwined. Mitotic figures were very rare (fig. 1b). Interspersed between this particular type of cell were cells which closely resembled interstitial cells of Leydig and had well defined outlines, abundant pale staining cytoplasm that appeared slightly foamy, and large vesicular nucleoli that were slightly eccentrically placed. No lipochrome pigment or crystalloids of Reincke were seen. There was very little pleomorphism of the nuclei. Frozen section of the ovarian tumor showed an arrhenoblastoma with a positive fat stain. The other ovary showed a few old corpora albicantia and atretic follicles. The oviducts had a delicate papillary pattern in which the papillae were covered by ciliated columnar cells. The muscular and serosal coats were free of inflammation. Multiple sections of the uterus showed a rather senile atrophic type of endometrium. The myometrium was not remarkable.

Diagnosed were an arrhenoblastoma of the left ovary, intermediate type; normal right ovary; normal bilateral oviducts; and a senile uterus.

Postoperative Course.—The hirsutism in this patient gradually diminished during the six months following surgery. Her voice returned almost to normal although some huskiness persisted. A twenty-two months' postoperative examination May 1, 1952, revealed the hirsutism to have resolved completely. A pelvic examination was entirely normal, and no evidence of recurrence of the tumor could be detected.

Pathology

This rare tumor, arrhenoblastoma, is usually unilateral and is slightly more frequent on the right side. Curtis[5] has stated that approximately 5 per cent are bilateral. Gnassi[10] has reported 4 distinct primary sites less than 1 cm. in diameter in one ovary. The arrhenoblastoma is a solid ovarian tumor which strongly resembles a fibroma or fibroadenoma. It is usually of moderate size and may be very small, but in at least a few recorded instances it has been large, up to 6 to 8 inches in diameter. Its surface is smooth, and the cut surface is grayish with often a yellowish hue. The consistency is generally firm, but cystic degeneration is frequent with often rather large cystic cavities present in the larger tumors.

The microscopical diagnosis of arrhenoblastoma is not always simple. No stereotyped picture can be described. In the testicular adenoma variety, the duplication of seminiferous tubule formation may be perfect, and rete structures may be present. In the intermediate group, on the other hand, only imperfect attempts at tubule formation may be seen. Interstitial cells, with characteristic lipoid content, may be present or absent, although it is unlikely that this factor alone determines the function or nonfunction of the tumor, as some have suggested. Finally, in the undifferentiated variety, the picture may be that of sarcoma. In the majority of cases, after thorough examination, perhaps involving the study of many blocks of tissue, there will be revealed a cordlike arrange-

ment of cells or imperfect tubule formation, or lipoid-containing cell elements, which indicate the arrhenoblastomatous nature of the tumor. As Novak stated, however, "the clinical history is of the greatest value to the pathologist in the microscopical examination of these tumors, and he is certainly entitled to the benefit of these facts."

Meyer proposed a developmental origin of these tumors, suggesting that the arrhenoblastoma arises from male directed cells that persist in the ovary from an earlier stage of gonadogenesis. Popoff[29] has considered arrhenoblastomas to be of teratomatous origin. This view is supported by Kanter and Klawans,[15] who reported a teratoma in association with an arrhenoblastoma. Teilum[35] and Iverson[11] have expressed the belief that adrenal tumors, luteomas, and masculinovoblastomas are all variants of arrhenoblastoma with an overgrowth of lipoid elements. Teilum in 1946 and Ostergaard[25] in 1947 have reported cases of arrhenoblastoma in the male with evidence of feminization.

VIRILIZING LIPOID CELL TUMORS

Barzilai[2] has designated the second group of masculinizing tumors as the "virilizing lipoid cell tu-

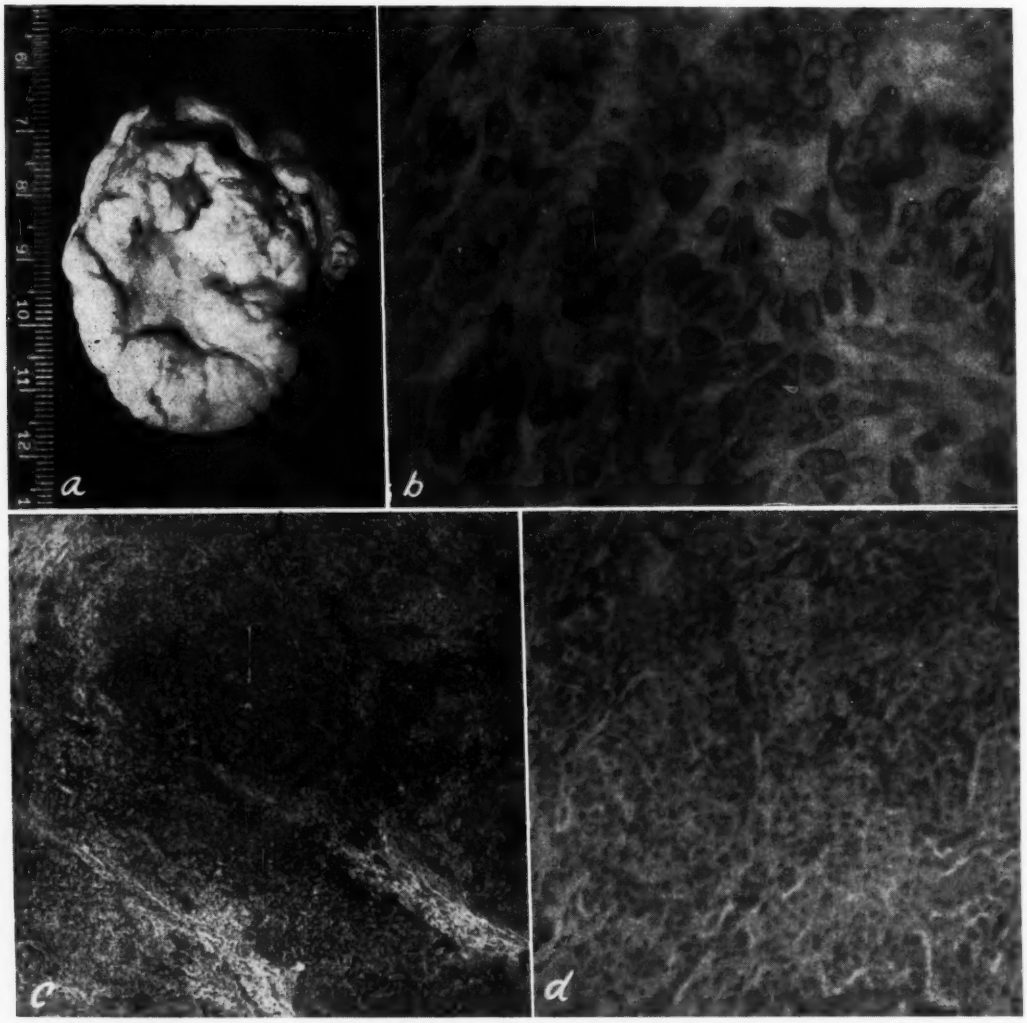


FIG. 1a. Photograph of the left tube and cut surface of an arrhenoblastoma occupying most of the left ovary.

b. High power photomicrograph of the arrhenoblastoma showing spindle-shaped cells with spindle-shaped nuclei.

c. Low power photomicrograph of the arrhenoblastoma, which was of the intermediate type.

d. Medium power photomicrograph of the arrhenoblastoma showing abortive attempts at gland formation and long ribbons of cells which intertwine.

mors." In this group are included the tumors variously designated as "luteinomas, adrenal rest tumors, hypernephroma, interstitioma, and masculinovoblastoma."

In 1908 Bovin[4] recorded the first case of "hypernephroma or adrenal rest tumor" of the ovary. Glynn[9] in 1921 made a critical survey of the status of the lipoid cell tumors, luteomas, and hypernephromas. He favored a lutein origin of these primary lipoid cell ovarian neoplasms. More confusion was created, however, by the indiscriminant use of the term "hypernephroma." Some authors have mistakenly included in this group the metastatic nonvirilizing tumors of the ovary. For example, according to Iverson, none of the 19 cases of hypernephroma of the ovary which Stadiem[32] reviewed in 1937 can now be classified as a primary virilizing lipoid cell tumor of the ovary. In 1939 Rottino and McGrath[30] limited the entire number of previously reported virilizing lipoid cell tumors to 7 cases, and they coined the term "masculinovoblastoma" for this group of tumors. Kepler[16] in 1944 collected 6 additional cases and added 1 of his own to bring the total to 14 cases. Iverson[11] in 1947 collected from the literature 7 more cases of lipoid cell tumors associated with masculinizing symptoms, bringing the total to 21 cases. I have accumulated 6 more case reports from the literature, bringing the total to 28 through 1951.[5, 7, 22, 37, 38, 39]

Pathology

Virilizing lipoid cell tumors of the ovary are usually well encapsulated, round or oval in shape, and measure from 2 to 16 cm. in diameter, averaging 7 cm. Cystic changes occasionally have been found in some of these tumors. The ovary is often compressed to one side of the tumor or may be absent altogether. The yellowish-orange color on cut section is due to the presence of lipoids within the cytoplasm of large polyhedral cells. These cells tend to be arranged in columns within a vascular, delicate, fibrous stroma. In some areas near the periphery of the tumor, the cells may be clumped together. A fine reticulum is usually present. Ponceau fuchsin stain may show fuchsinophil granules within the cytoplasm of some of the cells, supposedly indicating androgenic function. Some of the tumors show areas resembling granulosa cells, spindle-shaped sarcomatous cells, or theca cells.

The histologic similarity of the adrenal rest tumors, luteomas, and luteinized granulosa or theca cell tumors suggests that a careful evaluation of the clinical signs is necessary for accurate classification. Geist and Spielman[8] suggested that when the tumor is accompanied by signs of masculinization, it be considered an adrenal rest tumor and when it is accompanied by evidence of feminization, it be termed a luteinized granulosa or theca cell tumor.

CLINICAL CHARACTERISTICS

Masculinizing tumors of the ovary characteristically occur in young women, the greatest incidence being in the decades between 20 and 40 years. At least 1 case has been observed in a patient as young as 15 years of age. The characteristic clinical history is primarily dependent upon the fact that these tumors have endocrine functions that bring about certain defeminizing phenomena following which there is a phase in which definite masculinization manifestations are produced. Amenorrhea is usually the first symptom noticed. Shortly after cessation of the menstrual function, the breasts began to atrophy. These are defeminizing signs. Subsequently there usually appears hirsutism of the face and body, a deepening and roughening of the voice, and hypertrophy of the clitoris. These signs indicate the masculinizing effect. The highly differentiated or testicular tubular adenomas rarely produce masculinization, although at least 3 patients with testicular tubular adenomas have been reported to have this sign. Testicular tubular adenomas also may occur in women who have only rudimentary genital organs; this fact has been reported by several investigators. Most women with the undifferentiated and intermediate types of arrhenoblastoma usually have some signs of virilization, but exceptions do occur. Thus there is no absolute correlation between the histologic type of arrhenoblastoma and the presence or absence of masculinization.

Table 1 compares the various signs and symptoms of virilization as they occur in the arrhenoblastoma and the virilizing lipoid cell tumors of the ovary.

Amenorrhea is usually the first symptom to appear. After the tumor is removed the menses usually return in a month or two.

TABLE 1.—*Comparison of Virilization Signs of Arrhenoblastoma and Virilizing Lipoid Cell Tumor.*

	Virilizing Lipoid Cell Tumors (% of Cases)	Arrhenoblastomas (% of Cases)
Amenorrhea	95	100
Hirsutism	100	85
Voice changes	90	62
Atrophy of breasts	50	70
Hypertrophy of clitoris	72	70

Hirsutism is manifested by coarse hair which is usually distributed over the forearms, legs, thighs, chest, chin, and face. There is masculine hair distribution over the pubic region. Patients frequently shave daily. Patients who exhibit no hirsuitism have no other associated masculinizing symptoms except for amenorrhea. Hirsutism usually decreases gradually after removal of the tumor.

Voice changes are usually noted. The vocal cords, when examined, show reddening, true hypertrophy,

or no change. After removal of the tumor, the voice becomes higher pitched and the vocal cords diminish in size. Some cases show no improvement in the voice.

Atrophy of the breast is usually noted. This sign regresses rapidly postoperatively in the majority of cases.

Hypertrophy of the clitoris is commonly found. The clitoris has been reported to vary from 2 to 7 cm. in length, averaging about 3.5 cm. Postoperative regression has not been observed closely, but in some cases an appreciable decrease in size has been recorded.

Masculine habitus and muscular development, loss of female fat distribution, acne, and thickening of the skin are frequently noticed. Rare cases of pseudohermaphroditism, vaginal atresia, and infantile uterus and adnexae have been reported. Hypertension, obesity, and glycosuria frequently have been reported to be associated with the virilizing lipoid cell tumors of the ovary.

CHEMICAL AND HORMONAL STUDIES

Kanter and Klawans[13] reported relatively normal readings for the following blood and urinary chemical studies in patients having an arrhenoblastoma: blood urea nitrogen, total nonprotein nitrogen, creatinine, creatine, and sodium chloride. They reported that the urinary creatinine is low and the creatine is high, and also that both sodium and potassium levels in the urine are decreased. They found that the blood serum sodium is markedly decreased, while the potassium is increased. The abnormal values which they reported showed a definite trend toward normal following operative removal of the tumor. This made them feel that the variations from the generally accepted normal levels found before removal of the tumor were unquestionably based upon the presence of the arrhenoblastoma.

Accurate evaluations of hormonal assays is impossible because of the great variation in standards and methods and because of the absence of control assays. 17-Ketosteroid values have been obtained by several investigators. Mallory[19] reported normal ketosteroid values in a patient with a testicular tubular adenoma, whereas Jones and Everett[14] observed elevation of ketosteroids in one patient with an intermediate type of arrhenoblastoma. In general, it might be stated that there is an increase in androgens and a decrease in estrogens and gonadotropins. In the absence of a recurrence of the tumor, normal hormonal blood levels are gradually resumed postoperatively.

DIFFERENTIAL DIAGNOSIS

Several conditions must be considered in the differential diagnosis when virilism exists in the female. Both the adrenal gland and the pituitary gland are capable of producing conditions which resemble the clinical picture that may result from a functioning arrhenoblastoma. Tumors of the androgenic portions of the adrenal gland and also of the basophilic area of the pituitary gland must be differentiated.

Cushing's syndrome, or basophilic adenoma of the pituitary gland, is characterized by hypertrichosis and amenorrhea, without hypertrophy of the clitoris or the larynx. Hypertension, usually of the fluctuant type, is a common finding. Hyperglycemia, glycosuria, and a lowered sugar tolerance have been observed in a large percentage of these patients. Characteristically there is obesity about the face, neck, and trunk, acrocyanosis, purplish striae on the thighs, and interference with the fields of vision. Headache, which is often severe and of the pituitary type, may be an associated complaint. Since the adenoma is minute in most cases, signs of increased intracranial pressure are only rarely encountered. In only a few instances has the pituitary tumor been found large enough to distend the sella or give rise to intracranial pressure symptoms. In these patients a pelvic examination reveals no ovarian tumor. Cushing's syndrome also has been found associated with an "oat-cell carcinoma" of the thymus and with hyperplasia or adenoma of the parathyroids. Cushing's syndrome is usually readily recognized, particularly in a classical case, but its primary cause is difficult and often impossible to determine from the clinical manifestations alone. The diagnosis is therefore necessarily one of exclusion.

Since the clinical manifestations of pituitary basophilism and adrenal cortical tumors may be identical, and since the pituitary lesion is usually too small to be detected by roentgen rays, the site of the primary lesion often must remain uncertain until autopsy, unless an adrenal neoplasm can be demonstrated by aerograms or by surgical inspection of the adrenal glands. Simultaneous involvement of both the adrenal and pituitary glands is not uncommon so that even when roentgen rays reveal a definite alteration in the adrenals, a pituitary lesion is not entirely excluded. More recent investigations of 17-ketosteroid excretion indicate that the values in adrenal cortical carcinoma are significantly elevated, whereas in adrenal cortical hyperplasia or benign adenoma the increases noted are too slight and the values too variable to constitute a reliable aid in the differential diagnosis between Cushing's disease of adrenal cortical and pituitary origin.

The differential diagnosis between the arrhenoblastoma and the adrenogenital syndrome is somewhat

more difficult. The typical clinical features of both of these conditions closely parallel each other. Amenorrhea, hypertrophy of the clitoris, laryngeal enlargement, and hirsutism, together with breast atrophy, changes in fat distribution, and loss of libido are common to these two masculinizing influences. The differential diagnosis must be made on several points. An ovarian tumor on pelvic examination would lead to a diagnosis of arrhenoblastoma; however, the ovarian tumor may be small and not easily detected. Perirenal air insufflation for adrenal gland visualization can be performed, but even then a very small adrenal tumor may not be visualized. Careful blood and urinary chemical study may give a clue as to the precise diagnosis. According to Kanter and Klawans (table 2), in the presence of adrenal tumors there is hypertension associated with a decrease in the serum sodium and an increase in the serum potassium. The urinary sodium is increased to three times normal and the urinary potassium is decreased. There is an

TABLE 2.—*Kanter and Klawans' Blood and Urine Chemical Studies in Differential Diagnosis Between the Arrhenoblastoma and the Adrenogenital Syndrome.*

	Adrenogenital Syndrome	Arrhenoblastoma
Serum sodium	Decreased	Decreased
Serum potassium	Increased	Increased
Nitrogenous products	Increased	Normal
Urine sodium	Increased	Decreased
Urine potassium	Decreased	Decreased

increase in the nitrogenous product retention to five or six times the normal value in the adrenogenital syndrome and not in the arrhenoblastoma. The chemical studies in the latter tumor show a decreased serum sodium and an increased serum potassium with relatively normal urea, nonprotein nitrogen, and creatinine, and both urinary sodium and potassium are found to be decreased.

MALIGNANCY

It is difficult as yet to evaluate the question of the degree of malignancy of the arrhenoblastoma tumor group. Most cases have been reported rather early because of their rarity and their biologic interest, so that sufficient time has not elapsed to judge their ultimate course. Javert's[12] questionnaires and investigation of the literature in 1951 revealed the number of malignant cases to be 27 of the total of 122 cases reported, making the incidence of malignancy 22 per cent. Malignancy rates of these tumors of approximately 10 to 14 per cent have been reported by Baldwin and Gafford and by Iverson. O'Connor and Diddle[24] estimated a 12.7 per cent recurrence rate on the basis of 110 cases reported. Malignant arrhenoblastomas usually reveal gross evidence of malignancy either prior to operation or at operation so that there is usually no question as to whether or not the tumor is benign or malignant at the time of surgery. None of the patients reported as having malignant tumors have been known to survive or to be free of recurrence in their subsequent course. Recurrences after excision of an apparently benign tubular adenoma has been reported by several investigators, but possibly if additional sections or blocks of tissue had been examined in these cases, the intermediate or undifferentiated tumor pattern might have been revealed. Javert's questionnaire also has confirmed a benign course in 37 of the reported tumors.

PREGNANCY

Javert's questionnaire revealed the following conclusions in the association of pregnancy and arrhenoblastoma:

1. The simultaneous occurrence of arrhenoblastoma and pregnancy is exceedingly rare because of the association of virilization, and only 5 such cases have been reported in the literature.

2. Pregnancy prior to the appearance of the tumor has been recorded at least 100 times in 38 patients; thus the opportunities for pregnancy prior to the development of arrhenoblastoma are the same as for normal women if no associated congenital malformations or pathologic condition exists.

3. Pregnancy after surgical removal of a tumor is known to have occurred at least 30 times in 25 patients. The incidence of pregnancy after the conservative operation for arrhenoblastoma is apparently no different from that in any woman who has had a unilateral oophorectomy; thus it is thought that this factor justifies a conservative operation when the patient is in the childbearing period of life unless the tumor is obviously malignant. At least 6 of the 51 patients who had never been pregnant were found to have associated congenital anomalies of the reproductive organs making conception an impossibility.

TREATMENT

Evidence of malignancy in masculinizing tumors is usually present either before or at the time of surgery, so that in the absence of such evidence it is a fairly safe procedure to preserve the uterus and the opposite ovary, particularly since the majority of patients with an arrhenoblastoma are in their second or third decade of life. In doubtful cases, a pathologic diagnosis in the operating room may be of assistance. Javert has stated that if ascites, rapid growth of the tumor, adhesions, bilateral tumors, or evidence of invasion are present at the time of exploratory laparotomy, total removal of the pelvic genital organs, if possible, should be carried out. If the uterus or opposite ovary remain intact in a patient in whom subsequent pathologic evidence of malignancy of the

removed tumor is found, further pelvic surgery is necessary. Even when the tumor appears to be grossly benign, complete removal of the pelvic organs should be carried out in the postmenopausal patient or if genital anomalies, adhesions, and bilateral tumors are present. In general, conservative surgery such as unilateral oophorectomy should be reserved for the apparently benign unilateral tumors in young women with normal genital organs in whom pregnancy is desired.

Postoperatively all patients should be followed carefully because the incidence of malignancy of the arrhenoblastoma is approximately 20 to 25 per cent. The development of a pelvic mass or ascites or the return of masculinization indicates a recurrence. Javert has suggested that it may be advisable to follow those patients having benign tumors with ketosteroid determinations in order to detect recurrence, just as those patients with suspected chorionepithelioma are followed by gonadotropic hormone studies. As stated before, 3 supposedly benign tumors are known to have recurred.

SUMMARY AND CONCLUSIONS

A review of the literature, the pathologic manifestations, and the clinical characteristics of both the arrhenoblastoma and the virilizing lipoid cell tumors of the ovary has been presented. Approximately 126 authenticated arrhenoblastomas and 28 virilizing lipoid cell tumors of the ovary have been reported through 1951.

A case report of a patient having an arrhenoblastoma of the intermediate variety has been reported in detail. A significant factor in this case is that the patient had had an unknown amount of intrauterine pelvic radium therapy two and a half years before virilization signs of the arrhenoblastoma appeared. The radiation was sufficient to create an artificial menopause and to destroy the ovarian endocrine-functioning follicular cell elements. This fact would tend to refute the embryonic rest theory of Meyer that these tumors arise from male directed cells which persist in the ovary from an earlier stage of gonadogenesis. The radiation therapy should have destroyed the endocrine function of the male as well as the female cell elements.

The differential diagnosis between Cushing's syndrome, the adrenogenital syndrome, and masculinizing tumors of the ovary has been discussed. In future investigating and reporting of patients having masculinizing tumors of the ovary, more complete urinary and blood chemical studies should be performed to confirm Kanter and Klawans' chemical findings, and thus possibly aid in the differential diagnosis of virilization syndromes.

Javert's questionnaires and review of the literature in 1951 revealed that the incidence of malignancy in arrhenoblastomas is approximately 22 per cent.

The incidence of pregnancy after a conservative operation for removal of an arrhenoblastoma is no different from that in any woman who has had a unilateral oophorectomy. Thus it is advisable that unless the tumor is obviously malignant a conservative operation be performed on these patients in the childbearing period of life when the remaining genital organs are normal. If subsequent microscopic examination of the tumor reveals histologic malignancy, the remaining pelvic organs should be removed. Complete removal of the pelvic organs should be carried out in the presence of a masculinizing tumor of the ovary in the postmenopausal patient or if genital anomalies, adhesions, bilateral tumors, ascites, or evidence of invasion are present.

REFERENCES

A complete bibliographic list to which the reference numbers in the text refer may be obtained from the author.

408 West Fifteenth Street.

CORPS EXAMINATION FOR MEDICAL OFFICERS

A competitive examination for appointment of medical officers to the Regular Corps of the United States Public Health Service will be held May 5, 6, and 7 throughout the United States. Applications must be received by March 24.

The Regular Corps is a commissioned officer corps composed of members of various medical and scientific professions. Active duty satisfies the officer's selective service obligation but does not ordinarily confer veteran status upon him.

Appointments are made in the grades of assistant surgeon, equivalent to Navy rank of lieutenant junior grade, and senior assistant surgeon, equivalent to lieutenant. Application forms can be obtained from the Chief, Division of Commissioned Officers, Public Health Service, Federal Security Agency, Washington 25, D. C.

Examinations for College of Surgeons Set

Qualifying examinations for fellowship in the United States section of the International College of Surgeons will be held February 2 and 3, May 4 and 5, August 10 and 11, and November 2 and 3. Applicants for the examinations, which will be given at the Cook County Graduate School of Medicine, Cook County Hospital, Chicago, may obtain details from Dr. Harry A. Oberhelman, 1516 Lake Shore Drive, Chicago 10.

Medical Examiners Set Test Date

The Texas State Board of Medical Examiners has announced that it will hold its next examination meeting on June 22, 23, and 24 at the Texas Hotel in Fort Worth. Reciprocity applications must be completed thirty days prior to the meeting date.

NEWS

COMING MEETINGS AND CLINICS

Texas Medical Association, Houston, April 28-29, 1953. Dr. T. C. Terrell, Fort Worth, Pres.; Mr. N. C. Forrester, 1801 Lamar Blvd., Austin, Executive Secy.

American Medical Association, New York, June 1-5, 1953. Dr. Louis H. Bauer, Hempstead, N. Y., Pres.; Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secy.

NATIONAL AND REGIONAL

American Academy of Allergy, Boston, Feb. 26-28, 1953. Dr. Horace S. Baldwin, Milwaukee, Pres.; Dr. Ben Z. Rappaport, 55 E. Washington St., Chicago, Secy.

American Academy of Dermatology and Syphilology, Chicago, Dec. 5-10, 1953. Dr. Michael H. Ebert, Chicago, Pres.; Dr. John E. Rauschkolb, 25 Prospect Ave., N. W., Cleveland 15, Secy.

American Academy of General Practice, St. Louis, March 23-26, 1953. Dr. R. B. Robins, Camden, Ark., Pres.; Mr. Mac F. Cahal, 406 W. 34th St., Kansas City 2, Executive Secy.

American Academy of Obstetrics and Gynecology, Cincinnati, Dec. 14-16, 1953. Dr. Robert A. Kimbrough, Jr., Philadelphia, Pres.; Dr. C. Paul Hodgkinson, Detroit, Secy.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 12-16, 1953. Dr. Frederick C. Cordes, San Francisco, Pres.; Dr. W. L. Benedict, 100 First Ave. Bldg., Rochester, Minn, Secy.

American Academy of Pediatrics, Miami, Oct. 6-9, 1953. Dr. Phillip Barba, Philadelphia, Pres.; Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secy.

American Association for Thoracic Surgery, San Francisco, March 27-30, 1953. Dr. Robert M. Janes, Toronto, Canada, Pres.; Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secy.

American Association of Genito-Urinary Surgeons, Hot Springs, Va., May 6-8, 1953. Dr. A. J. Scholl, Los Angeles, Pres.; Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secy.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 10-12, 1953. Dr. Nicholson J. Eastman, Baltimore, Pres.; Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Secy.

American Cancer Society. Dr. Guy Aud, Louisville, Ky., Pres.; Mr. M. R. Runyon, 47 Beaver St., New York, Executive Vice-Pres.

American College of Allergists, Chicago, April 26-29, 1953. Dr. J. Warrick Thomas, Richmond, Va., Pres.; Dr. Fred W. Wittich, 423 La Salle Medical Bldg., Minneapolis 2, Secy.

American College of Chest Physicians, New York, May 28-31, 1953. Dr. Andrew L. Banyai, Milwaukee, Pres.; Mr. Murray Kornfield, 112 E. Chestnut St., Chicago 11, Executive Secy.

American College of Physicians, Atlantic City, April 13-17, 1953. Dr. T. Grier Miller, Philadelphia, Pres.; Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secy.

American College of Radiology, Chicago, Feb. 6, 1953. Dr. John S. Bouslog, Denver, Pres.; Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secy.

American College of Surgeons, Chicago, Oct. 5-9, 1953. Dr. Harold L. Foss, Danville, Pa., Pres.; Dr. Michael L. Mason, 40 E. Erie St., Chicago 11, Secy.

American Congress of Physical Medicine and Rehabilitation, Chicago, Aug. 31-Sept. 4, 1953. Dr. Walter M. Solomon, Cleveland, Pres.; Dr. Frances Baker, 1 Tilton Ave., San Mateo, Calif., Secy.

American Dermatological Association, Lake Placid, N. Y., June 9-13, 1953. Dr. Earl D. Osborne, Buffalo, Pres.; Dr. L. A. Brunsting, 102 2nd Ave., S. W., Rochester, Minn., Secy.

American Gastro-Enterological Association, Atlantic City, May 1-2, 1953. Dr. Albert M. Snell, Palo Alto, Calif., Pres.; Dr. H. Marvin Pollard, 1313 E. Ann St., Ann Arbor, Mich., Secy.

American Gynecological Society. Dr. William P. Healy, New York, Pres.; Dr. John I. Brewer, 104 S. Michigan Ave., Chicago, Secy.

American Hospital Association, San Francisco, Aug. 31-Sept. 3, 1953. Dr. Edwin L. Crosby, Chicago, Pres.; Mr. George P. Bugbee, 18 E. Division St., Chicago, Executive Secy.

American Laryngological, Rhinological, and Otological Society, New Orleans, April 28-30, 1953. Dr. Francis E. Le Jeune, New Orleans, Pres.; Dr. C. S. Nash, 277 Alexander St., Rochester 7, N. Y., Secy.

American Neurological Association, Atlantic City, June 15-17, 1953. Dr. Hans H. Reese, Madison, Wis., Pres.; Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secy.

American Ophthalmological Society, Hot Springs, Va., May 28-30, 1953. Dr. Conrad Berens, New York, Pres.; Dr. M. C. Wheeler, 30 W. 59th St., New York 19, Secy.

American Orthopedic Association. Dr. James Dickson, Cleveland, Pres.; Dr. George O. Eaton, 4 E. Madison St., Baltimore 2, Secy.

American Pediatric Society, Atlantic City, May 6-8, 1953. Dr. Irvine McQuarrie, Minneapolis, Pres.; Dr. Aims McGuinness, 237 Medical Laboratory, University of Pennsylvania, Philadelphia 46, Secy.

American Proctologic Society, Boston, June 10-13, 1953. Dr. Newton D. Smith, Rochester, Minn., Pres.; Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y., Secy.

American Psychiatric Association, Los Angeles, May 4-9, 1953. Dr. D. Ewen Cameron, Montreal, Canada, Pres.; Dr. R. Finley Gayle, 6300 Three Chopt Rd., Richmond 21, Va., Secy.

American Public Health Association, New York, Nov. 9-13, 1953. Dr. Wilton L. Halverson, San Francisco, Pres.; Dr. R. W. Atwater, 1790 Broadway, New York 19, Executive Secy.

American Society of Anesthesiologists. Dr. Ralph T. Knight, Minneapolis, Pres.; Dr. J. E. Remlinger, Jr., 188 W. Randolph St., Chicago, Secy.

American Society of Clinical Pathologists. Dr. Israel Davidsohn, Chicago, Pres.; Dr. Clyde G. Culbertson, Indiana University School of Medicine, Indianapolis, Secy.

American Surgical Association, Los Angeles, April 1-3, 1953. Dr. Robert S. Dinsmore, Cleveland, Pres.; Dr. Nathan Womack, Chapel Hill, N. C., Secy.

American Urological Association, St. Louis, May 11-14, 1953. Dr. George F. Cahill, New York, Pres.; Dr. C. H. DeT. Shivers, 121 S. Illinois Ave., Atlantic City, N. J., Secy.

Association of American Physicians and Surgeons, Chicago, April 10-11, 1953. Dr. Charles L. Farrell, Pawtucket, R. I., Pres.; Mr. Harry E. Northam, 360 N. Michigan Ave., Chicago 1, Executive Secy.

International College of Surgeons, U. S. Chapter. Tri-State Assembly, Dallas, Feb. 5-7, 1953. Dr. H. W. Meyerding, Rochester, Minn., Pres.; Dr. Arnold S. Jackson, 1516 Lake Shore Drive, Chicago, Secy.

National Tuberculosis Association, Los Angeles, May 18-22, 1953. Dr. Sidney J. Shipman, San Francisco, Pres.; Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secy.

Radiological Society of North America. Dr. Joseph C. Bell, Louisville, Ky., Pres.; Dr. D. S. Childs, 713 E. Genesee, Syracuse 2, N. Y., Secy.

Southern Medical Association, Atlanta, Ga., Oct. 26-29, 1953. Dr. Walter C. Jones, Miami, Pres.; Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham 3, Ala., Secy.

Southern Psychiatric Association. Dr. R. Burke Suitt, Durham, N. C., Pres.; Dr. Newdigate M. Owensby, Medical Arts Bldg., Atlanta, Ga., Secy.

Southern Surgical Association, Hot Springs, Va., Dec. 8-10, 1953. Dr. I. A. Bigger, Richmond, Va., Pres.; Dr. John C. Burch, 2112 West End Ave., Nashville 5, Tenn., Secy.

Southwest Allergy Forum, Kansas City, Mo., June 14-16, 1953. Dr. Orval R. Withers, Kansas City, Mo., Pres.; Dr. Frederic Speer, 2601 Parallel Ave., Kansas City 4, Mo., Secy.

Southwest Regional Cancer Conference. Secy., 209 Medical Arts Bldg., Fort Worth.

Southwestern Medical Association, Tucson, Ariz., 1953. Dr. Wesley O. Connor, Jr., Albuquerque, N. M., Pres.; Dr. Celso Stapp, 800 Montana, El Paso, Secy.

Southwestern Surgical Congress, Salt Lake City, Utah, Sept. 21-23, 1953. Dr. Louis P. Good, Texarkana, Ark., Pres.; Dr. C. R. Rountree, 1227 Classen, Oklahoma City 3, Secy.

Tri-State Medical Assembly. Dr. Frank G. Thibault, El Dorado, Ark., Pres.; Dr. Albert M. Hand, Le Bonheur Children's Hospital, Memphis 3, Tenn., Secy.

United States-Mexico Border Public Health Association, Ciudad Juarez, Chihuahua, Mexico, 1953. Dr. Salvador Molina Velez, Nuevo Leon, Mexico, Pres.; Dr. Sidney B. Clark, 314 U. S. Court House, El Paso, Secy.

STATE

Private Clinics and Hospitals Association of Texas. Dr. S. D. Coleman, Navasota, Pres.; Dr. Neil D. Buie, Marlin, Secy.

State Tumor Clinic, Wichita Falls, April 1, 1953. Dr. Bailey R. Collins, 925½ Scott Street, Wichita Falls, Director.

Texas Academy of General Practice, Dallas, Sept. 21-23, 1953. Dr. C. U. Callan, Roran, Pres.; Dr. Woodson W. Harris, 1410 Nickerson, Austin, Secy.

Texas Academy of Internal Medicine, Houston, December, 1953. Dr. Hatch W. Cummings, Jr., Houston, Pres.; Dr. George M. Jones, 1314 Medical Arts Bldg., Dallas, Secy. Meetings restricted to members.

Texas Air-Medics Association, Houston, April 26-27, 1953. Dr. Claire F. Miller, Waco, Pres.; Dr. J. S. Minnett, 2512 Welborn, Dallas, Secy.

Texas Association of Blood Banks, Fort Worth, Dec. 4-5, 1953. Dr. W. N. Powell, Temple, Pres.; Miss Marjorie Saunders, 3500 Gaston Ave., Dallas, Secy.

Texas Association of Obstetricians and Gynecologists, Fort Worth, Feb. 13-14, 1953. Dr. George Adam, Houston, Pres.; Dr. Carey Hiett, 815 Fifth Ave., Fort Worth, Secy.

Texas Chapter, American College of Chest Physicians, Houston, April 27, 1953. Dr. Robert B. Morrison, Austin, Pres.; Dr. Samuel Topperman, East Texas State Sanatorium, Tyler, Secy.

Texas Club of Internists. Dr. Herbert Hill, San Antonio, Pres.; Dr. Hatch W. Cummings, Jr., 203 Hermann Professional Bldg., Houston, Secy.

Texas Dermatological Society, Houston, April 26-27, 1953. Dr. C. H. McCuistion, Austin, Pres.; Dr. Thomas L. Shields, 1216 Pennsylvania Ave., Fort Worth, Secy.

Texas Diabetes Association, Houston, April 26, 1953. Dr. E. K. Doak, Houston, Pres.; Dr. R. C. Douglas, 1312 Main, Lubbock, Secy.

Texas Division, American Cancer Society. Mr. Travis Wallace, Dallas, Pres.; Mr. J. Louis Neff, 1609 Colorado, Austin, Executive Director.

Texas Heart Association, Houston, April 27, 1953. Dr. J. C. Crager, Beaumont, Pres.; Miss Roberta Miller, 411 Reserve Loan Life Bldg., Dallas, Executive Secy.

Texas Hospital Association, Galveston, May 12-14, 1953. Mr. Carroll H. McCray, Tyler, Pres.; Mrs. Ruth Barnhart, 2210 Main St., Dallas, Secy.

Texas Neuropsychiatric Association, Houston, April 27, 1953. Dr. Don Morris, Dallas, Pres.; Dr. John L. Otto, John Sealy Hospital, Galveston, Secy.

Texas Orthopedic Association, Houston, April 27, 1953. Dr. Felix Butte, Dallas, Pres.; Dr. Margaret Watkins, 3629 Fairmount St., Dallas, Secy.

Texas Pediatric Society, Corpus Christi, October, 1953. Dr. J. A. Bybee, Beaumont, Pres.; Dr. M. C. Carlisle, 1410 Austin Ave., Waco, Secy.

Texas Public Health Association, Galveston, Feb. 15-18, 1953. Mr. H. E. Drumwright, Dallas, Pres.; Mr. Earle W. Sudderth, Dallas County Health Department, Court House, Dallas, Executive Secy.

Texas Radiological Society, Dallas, January, 1953. Dr. J. E. Miller, Dallas, Pres.; Dr. R. P. O'Bannon, 650 Fifth Ave., Fort Worth, Secy.

Texas Railway and Traumatic Surgical Association, Houston, April 27, 1953. Dr. Everett Lewis, Houston, Pres.; Dr. W. D. Marrs, 306 Broadway, Fort Worth, Secy.

Texas Rheumatism Association. Dr. Robert H. Mitchell, Fort Worth, Pres.; Dr. Charles H. Cornwell, Marlin, Secy.

Texas Society for Mental Health, Austin, March 2-3, 1953. Mr. William Grant, Jr., Baytown, Pres.; Mrs. Elizabeth F. Gardner, 2504 Jarratt Ave., Austin 21, Executive Secy.

Texas Society of Anesthesiologists, Houston, April 27, 1953. Dr. John F. Winter, San Antonio, Pres.; Dr. C. R. Allen, John Sealy Hospital, Galveston, Secy.

Texas Society of Gastroenterologists and Proctologists, Houston, April 27, 1953. Dr. Jack Kerr, Dallas, Pres.; Dr. C. P. Hardwicke, 120 W. Seventh St., Austin, Secy.

Texas Society of Ophthalmology and Otolaryngology, Fort Worth, Dec. 4-5, 1953. Dr. Dan Brannin, Dallas, Pres.; Dr. Lyle Hooker, 627 Esperson Bldg., Houston, Secy.

Texas Society of Pathologists. Dr. Charles T. Ashworth, Fort Worth, Pres.; Dr. Lloyd R. Hershberger, Shannon Memorial Hospital, San Angelo, Secy.

Texas Surgical Society, San Antonio, April 6-7, 1953. Dr. George W. Waldron, Houston, Pres.; Dr. Albert W. Hartman, 414 Navarro St., San Antonio 5, Secy.

Texas Tuberculosis Association, Mineral Wells, April 9-11, 1953. Dr. David McCullough, Kerrville, Pres.; Miss Pansy Nichols, 208 E. Ninth, Austin, Executive Secy.

Texas Urological Society. Dr. R. E. Cone, Galveston, Pres.; Dr. Roy M. Morgan, Jr., Hermann Hospital, Houston, Secy.

DISTRICT

First District Society, El Paso, Feb. 13-14, 1953. Dr. Jim Camp, Pecos, Pres.; Dr. H. D. Garrett, First National Bldg., El Paso, Secy.

Second District Society, Big Spring, April 3, 1953. Dr. John Hogan, Big Spring, Pres.; Dr. Arch Carson, Box 111, Big Spring, Secy.

Third District Society, Lubbock, April 14-15, 1953. Dr. James A. Odom, Memphis, Pres.; Dr. James T. Hall, 1626 Fifteenth Street, Lubbock, Secy.

Fourth District Society, Brownwood, Fall, 1953. Dr. Lloyd R. Hershberger, San Angelo, Pres.; Dr. Paul M. Wheelis, Brownwood, Secy.

Fifth and Sixth Districts Society, Corpus Christi, July 10-11, 1953. Dr. Y. C. Smith, Sr., Corpus Christi, Pres.; Dr. Robert J. Sigler, 1126 Third Street, Corpus Christi, Secy.

Seventh District Society, Austin. Dr. George W. Tipton, Austin, Pres.; Dr. D. B. Faubion, 1403-C Guadalupe, Austin, Secy.

Eighth District Society, Fall, 1953. Dr. Andrew S. Tomb, Victoria, Pres.; Dr. George E. Glover, Jr., Victoria, Secy.

Ninth District Society, Baytown, April 1, 1953. Dr. Otto F. Schoenvogel, Brenham, Pres.; Dr. Lyman C. Blair, 1212 Rothwell, Houston, Secy.

Tenth District Medical Society. Dr. Peyton C. Clements, Lufkin, Pres.; Dr. Edmund D. Jones, 2575 South, Beaumont, Secy.

Eleventh District Society, Tyler, Spring, 1953. Dr. Roscoe Moore, Mineola, Pres.; Dr. Marlin T. Braswell, Henderson, Secy.

Twelfth District Society. Dr. J. B. Brown, Temple, Pres.; Dr. Neil D. Buie, Marlin, Secy.

Thirteenth District Society, Wichita Falls. Dr. R. E. Cowan, Graham, Pres.; Dr. Robert D. Moreton, 815 Medical Arts Bldg., Fort Worth, Secy.

Fourteenth District Society, Gainesville, June 9, 1953. Dr. W. P. Philips, Greenville, Pres.; Dr. L. W. Johnston, 502 W. College St., Terrell, Secy.

Fifteenth District Society, Daingerfield, 1953. Dr. D. R. Baber, Daingerfield, Pres.; Dr. P. A. Reitz, Pittsburg, Secy.

CLINICS

Dallas Southern Clinical Society, Dallas, March 16-19, 1953. Miss Betty Elmer, Medical Arts Bldg., Dallas 1, Executive Secy.

Central Texas Spring Clinic, Waco, April 1, 1953. Dr. Walter B. King, 2320 Columbus Ave., Waco, Secy.

International Medical Assembly of Southwest Texas. Dr. John M. Smith, Jr., 205 Camden St., San Antonio, Secy.

New Orleans Graduate Medical Assembly, March 2-5, 1953. Dr. Woodard D. Beacham, Room 103, 1430 Tulane Ave., New Orleans 12, Secy.

North Texas-Southern Oklahoma Fall Clinical Conference, Sept. 16, 1953. Dr. C. H. Wilson, Wichita Falls, Chairman.

Oklahoma City Clinical Society Conference. Mrs. Muriel R. Waller, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secy.

Postgraduate Medical Assembly of South Texas, Houston, July 20-22, 1953. Dr. C. A. Dwyer, Secy., 229 Medical Arts Bldg., Houston.

NEUROPSYCHIATRIC MEETING

The Fifth Annual Neuropsychiatric meeting will be held at the Veterans Administration Hospital, North Little Rock, Ark., on February 26 and 27.

Guest lecturers who will participate include the following:

DR. D. EWEN CAMERON, President, American Psychiatric Association, Montreal, Quebec, Canada.

DR. ROLAND P. MACKAY, President-Elect, American Neurological Association, Chicago.

DR. DEXTER M. BULLARD, medical director, Chestnut Lodge Sanitarium, Rockville, Md.

MARGARET MEAD, Ph. D., associate curator of ethnology, The American Museum of Natural History, New York.

DR. I. ARTHUR MIRSKY, chairman, Department of Clinical Science, University of Pittsburgh School of Medicine, Pittsburgh.

DR. EDWIN F. GILDEA, head of the Department of Neuropsychiatry, Washington University School of Medicine, St. Louis.

DR. PHILIP THOREK, surgeon, Chicago.

DR. HAYDEN C. NICHOLSON, Dean, University of Arkansas School of Medicine, Little Rock.

DR. JOSEPH B. BOUNDS, manager, Veterans Administration Hospital, Jefferson Barracks, Mo.

MISS MARGARET DANIEL, social service field representative, Veterans Administration, St. Louis Medical Area.

MISS DOROTHY GREGG, coordinator, psychiatric nursing and mental hygiene, University of Colorado Department of Medicine, Denver.

In addition to scientific sessions and the dinner February 26, there will be approximately ten clinical demonstrations and thirty technical exhibits prepared by hospital staff members. On February 25, an all day meeting for psychiatric

social workers of the area also will be held at the Veterans Administration Hospital, North Little Rock.

No charge will be made for registration and attendance of all interested professional personnel will be welcomed subject only to limitations of seating facilities.

Further information may be obtained by writing to Dr. Ewin S. Chappell, Director of Professional Education, Veterans Administration Hospital, North Little Rock, Ark.

University of Texas Medical Branch

Visitors and *lecturers* at the University of Texas Medical Branch during December and January included Dr. Walter Meek, dean emeritus of the University of Wisconsin Medical School; Dr. and Mrs. John Belesario, Sydney, N.S.W., Australia, where Dr. Belesario is chief of dermatology at the University of Sydney; Dr. I. S. Wright, director of the Department of Medicine, New York Postgraduate Hospital; Dr. William Wingo, associate professor of biochemistry at the M. D. Anderson Research Foundation, Houston; Dr. Raymond L. Swener, chief of the science section of the Library of Congress; Dr. Robert A. Hingson, anesthesiologist, Western Reserve Medical School, Cleveland; Col. R. B. Lewis, M. C., Randolph Field; Dr. D. L. Thomson, McGill University, Montreal; Dr. Narno Dorbecker, chief of radiology, Institute of Cardiology, Mexico City; and Dr. Simon Rodbard, Medical Research Institute, Michael Reese Hospital, Chicago.

Dr. Harry B. Friedgood, clinical professor of medicine at the University of California of Los Angeles School of Medicine, took part as a guest speaker in a series of conferences on neuroanatomy, neurophysiology, endocrinology and social dynamics held recently at the Medical Branch.

A special group of discussions on "Permeability in Relation to Drug Action" was presented February 6 at the Medical Branch by Dr. Harvey Haag, professor of pharmacology at the Medical College of Virginia, Richmond.

Under the direction of Dr. Hubert Winston Smith, professor of legal medicine at the Medical Branch and Director of the Law-Science Institute at the University of Texas, Austin, a course in legal medicine and elements of medico-legal litigation was held February 9 through 12 in Houston. Speakers included members of the staff of the University of Texas and of Baylor University College of Medicine.

The annual Meyer Bodansky Lecture will be given at the University of Texas Medical Branch on March 6 by Dr. Charles Huggins of the Ben May Cancer Laboratory, University of Chicago. The subject of the lecture will be "The Adrenal and Cancer."

Dr. A. W. B. Cunningham, formerly of the University of Edinburg, has been appointed professor of pathology at the Medical Branch. He will be responsible for instruction and research on arthritis and diseases of the joints.

Dr. Vernie Stembridge, assistant professor of pathology, has been placed in charge of the Medical Branch's cancer program. Along with Lt. Colonel Frank Townsend, M.D., United States Air Force Medical Corps, who is stationed at Lackland Air Force Base, Dr. Stembridge has prepared an index of 107,000 pathological diagnoses made at John Sealy Hospital, Galveston, for statistical analysis.

A bequest for an endowment for support of studies on pancreatitis under direction of Dr. Raymond Gregory, director of the John Sealy Clinical Research Laboratory, Galveston, has been given by Mr. and Mrs. Orville Bullington of Wichita Falls in memory of their son, William Orville Bullington.

Dr. E. Sinks McLarty, adviser to the University of Texas Medical Branch chapter of the Student American Medical Association, took part in a panel discussion on "Building Understanding with Future M. D.'s" during the Medical Public Relations Conference in Denver on December 1.

Dr. D. D. Duncan, professor of anatomy, has been named associate dean in charge of the graduate school of the Medical Branch.

Dr. G. R. Herrmann was awarded an honorary professorship at Santiago, Chili, and membership in the Perma Cardiological Society, Lima, Peru, during a recent lecture tour to South America.

PERSONALS

Dr. J. J. Shiller, Rowena, was honored in November by his community for almost forty years of service and received a plaque and certificate of merit from the Woodmen of the World, reports the Miles *Messenger.*

Mrs. E. V. Headlee, wife of *Dr. E. V. Headlee* of Teague and mother of *Dr. Emmett Headlee* of Odessa, died November 24 in a Dallas hospital after a long illness, states the Dallas *News.*

New babies reported in the *Alumni Bulletin* of the University of Texas Medical Branch include sons to *Dr. T. G. and Dr. Virginia Blocker,* Galveston; to *Dr. and Mrs. Jack L. Smith,* Bakersfield, Calif.; and *Dr. and Mrs. E. Peter Garber,* Galveston. Twins, a boy and a girl, were born to *Dr. and Mrs. A. R. Nering,* El Paso. *Dr. and Mrs. Jones E. Witcher,* Amarillo, are the parents of a son. *Dr. and Mrs. Milton Turner,* Austin, are the parents of a boy born January 18.

Southwestern Medical School

A course in medical economics and ethics will be offered to senior medical students at Southwestern Medical School of the University of Texas, Dallas. The course will be presented during the final six months of the senior year. Emphasizing economic problems related to medical practice, the course will be included in the curriculum in order to prepare students better for their transition from medical school to private practice, according to Dr. G. N. Aagaard, dean.

The Victor Hexter Memorial Lectureship Fund in psychiatry has been established at Southwestern Medical School of the University of Texas by a gift of $1,000 from Louis J. Hexter in memory of his father, Victor Hexter. The fund will be used to bring outstanding teachers of psychiatry to the Southwestern Medical School. Through lectures by the visiting psychiatrists, emphasis will be placed on the relationship between the department of psychiatry in the medical school and the community.

Mississippi Valley Essay Contest

A cash prize of $100, a gold medal, and a certificate of award will be given to the winner of the 1953 annual essay contest of the Mississippi Valley Medical Society. Essays may pertain to any subject of general interest and practical value to the general practitioner of medicine. Further details may be secured from Dr. Harold Swanberg, secretary, Mississippi Valley Medical Society, 209-224 W.C.U. Building, Quincy, Ill.

Provision for individual patient instruction in the significance of asymptomatic tuberculosis lesions of small extent, or indeed of all inactive or suspected tuberculosis, is a great need which has grown out of mass survey examinations. This can be provided only by giving both clinic physicians and nurses the time to give each patient the full explanation he deserves.—Howard M. Payne, M. D., Phillip Enterline, and Julia Heuck, Am. Rev. Tuberc., Nov., 1952.

Central Texas Spring Clinic

Four out-of-state physicians and one Texas physician will be guest speakers at the annual Central Texas Spring Clinic meeting to be held April 1 at the Roosevelt Hotel in Waco.

The following scientific program has been prepared:

Common Surgical Problems in Children—Dr. Ovar Swenson, Boston.
Roentgen Manifestations of Intestinal Obstruction—Dr. J. E. Miller, Dallas.
Present Attitudes Toward Spinal Anesthesia—Dr. Urban Eversole, Boston.
Low Backache: The Role of the Herniated Nucleus Pulposus—Dr. I. W. Nachlas, Baltimore.
Comments on Medical Problems—Dr. R. B. Robins, Camden, Ark.

No registration fee will be charged. All members of the Texas Medical Association, particularly those residing in the Twelfth Medical District, are invited to participate in the meeting. Those attending will be guests of members of the Waco Journal Club, sponsors of the clinic, at a luncheon.

Officers of the Waco Journal Club are Dr. Ralph Coffelt, Waco, president; Dr. R. N. Beskow, Hillsboro, vice-president; and Dr. Walter B. King, Jr., Waco, secretary-treasurer.

SOUTHWEST ALLERGY FORUM

The Southwest Allergy Forum will meet in the Hotel Muehlebach, Kansas City, Mo., June 14-16. Sessions will be devoted to papers on practical aspects of allergy and persons interested in participating in the program are invited to write to the president, Dr. Orval Withers, Bryant Building, Kansas City 6, Mo.

Hotel reservations should be made early. Further information on the meeting can be secured from Dr. Frederic Speer, secretary, 2601 Parallel Avenue, Kansas City 4.

Texas Division, American Cancer Society

The seventh annual meeting of the Texas Division of the American Cancer Society was held January 16 and 17 at the Driskill Hotel in Austin.

Elected to office were Frank C. Smith, Houston, chairman of the board of directors; Travis Wallace, Dallas, president; Dr. G. V. Brindley, Temple, vice-president for medical activities; Mrs. Joseph M. Perkins, Eastland, vice-president for lay activities; Philip R. Overton, Austin, secretary; Fred F. Florence, Dallas, treasurer; and J. Louis Neff, Austin, executive director.

Dr. Charles Eckert, associate professor of surgery at Washington University School of Medicine, St. Louis, was guest speaker at the annual dinner January 16 and also guest consultant during an afternoon scientific session the same day.

AMERICAN COLLEGE OF SURGEONS

Surgical problems of current interest will be discussed during the two-day sectional meeting March 24 and 25 at the Biltmore Hotel in Oklahoma City of the American College of Surgeons.

A team of medical officers from Brooke Army Hospital, Fort Sam Houston, will present a symposium on trauma. Also taking part in the meeting will be Dr. John V. Goode, Dallas, who will discuss "Growth Characteristics of Mammary Cancer," and Dr. G. V. Brindley, Temple, who will preside at a dinner meeting featuring an address by Dr. Harold L. Foss of Danville, Pa., president of the American College of Surgeons.

Further information may be obtained by writing Dr. Michael L. Mason, secretary, American College of Surgeons, 40 East Erie Street, Chicago 11.

LIBRARY SECTION

LIBRARY SECTION CHANGED

The content of the Library Section is being changed with this issue to consist regularly of a short article on the Library, a list of new books received, film annotations, and book notices. Once or twice yearly will be published statistics and similar information. The Library staff hopes thus to provide a better idea of the organization, services, and functions of the Texas Medical Association Memorial Library and will welcome suggestions as to what should be included in this department of the JOURNAL.

REFERENCE SERVICE

One of the functions of the Library of the Texas Medical Association is reference service. The staff is prepared to send physicians up-to-date material on practically any medical subject, and usually it is shipped the same day the request is received. There are a few things which can be done to help assure getting exactly what is wanted. The request should be stated clearly and indicate the purpose for which the information is needed, since a different kind of material obviously is need for writing a paper than would be desired merely for brushing up on some rare malady. Also, if historical data are wanted, that should be stated as otherwise material more than five years old will not be included. The Library staff will work up bibliographies, gather material to help a physician prepare for board examinations, supply films for meetings, and perform innumerable other services for the asking.

The members of the staff who are hoping for an increase in use of Library facilities are as follows:

Miss Pauline Duffield, originally from Richwood, W. Va., completed her undergraduate work at George Peabody College for Teachers at Nashville, Tenn., and received her degree bachelor of science in library science there. She obtained her medical library training at Orleans Parish Medical Society Library and the Tulane University School of Medicine Library under the direction of Miss Mary Louise Marshall. She then went to Vanderbilt University School of Medicine Library as assistant librarian. From Vanderbilt, Miss Duffield went to the Medical and Chirurgical Faculty of Maryland Library and served as librarian there from 1946 to November, 1952, when she came to Texas as librarian for the Texas Medical Association.

Mrs. Katheryn Wendler, originally from San Antonio, received her education at St. Elizabeth's College in New Jersey and the University of Texas. She was employed by the Texas Employment Service before coming to the Library and has now been with the Association for four years.

Miss Alliece Pigott, of Austin, was graduated from Austin High School and attended the University of Texas. She has been in the Library for three years and was previously employed by the Brown Express in Dallas and the Texas Mailing Shop in Austin.

Mrs. Mary Talley, also a graduate of Austin High School,

attended the University of Texas and came to the Association three years ago.

Miss Alice Walker, an Austin High School and Nixon-Clay Business College graduate, came to the Association a year ago. She was previously employed by Cochran-Kinser-Hewlett and Moyer Real Estate Agency.

Surgeon-General's Catalogue Complete

The Library of the Texas Medical Association now has a complete set of the *Index Catalogue of the Library of the Surgeon-General's Office,* U. S. Army. This is the only complete set in the central Texas area. The completion of the set was made possible through the courtesy of the editor and Index-Catalogue Division of the Armed Forces Medical Library, Washington, D. C.

MOTION PICTURES FOR LOAN

Dwarfism

16 mm., sound, 40 minutes. (Available through the courtesy of Mead Johnson & Company.) By S. Z. Levine, M. D., Professor of Pediatrics, Cornell University Medical School, and Pediatrician-in-Chief, The New York Hospital.

Dr. Levine presents a film clinic on dwarfism. He divides dwarfism into various clinical types, including (1) skeletal, (2) endocrine, (3) visceral, (4) primordial, (5) miscellaneous, (6) unclassified, and (7) delayed adolescence (not true dwarfism). He presents a number of case histories, along with excellent photographs of patients. The subject is handled in an unusually able manner. The film should prove exceedingly useful for medical students, interns, residents, and pediatricians, as well as for general practitioners especially interested in diseases of children.

Congenital Cardiovascular Anomalies Amenable to Surgery

16 mm., sound, 33 minutes. (Available through the courtesy of Mead Johnson & Company.) By Stanley Gibson, M. D., Professor of Pediatrics, Northwestern University Medical School; Chief of Staff, Children's Memorial Hospital, Chicago.

Dr. Gibson discusses the various congenital anomalies of the heart and great vessels on which surgery has been successfully performed. He touches on the outstanding surgical contributions of Potts and Smith, as carried out at the Children's Memorial Hospital. The presentation is exceedingly clear and is aided by the use of charts showing the various cardiovascular anomalies.

Anesthesia with Vinethene

16 mm., sound, color, 25 minutes. (Available through the courtesy of Merck and Company, Inc.)

This film explains visually and by narration the precautions to be taken in the handling of Vinethene, and some of the technical points to be observed for its proficient administration. The method of administration alone for short medical and dental operative procedures, as an induction agent prior to ethyl ether, and as a complement to nitrous oxide-oxygen, is demonstrated. The film will be of worth to general practitioners as well as anesthesiologists and other professional groups interested in anesthesia.

The Heart: Cardiovascular Pressure Pulses and Electrocardiography

16 mm., sound, color, 34 minutes. (Available through the courtesy of G. D. Searle and Company.)

Section 1 constitutes a review of the cardiovascular pressure pulses and their significance in cardiac function. It presents a discussion of the pressures developing within the atria, ventricles, and aorta and includes the physiologic and physical principles involved in cardiac function as well as their relation to the electrocardiogram.

Section 2 includes certain common errors in technique and interpretation. It presents the use of the newer chest electrode and the indeterminate lead.

The Heart: Electrokymography, Venous Catheterization and Angiocardiography

16 mm., sound, color, 29 minutes. (Available through the courtesy of G. D. Searle and Company.)

Section 1 presents the subjects of roentgen kymography and electrokymography, together with the equipment required and the techniques used. It discusses illustrative interpretation of graphs obtained through electrokymography. These graphs include not only the normal but also those obtained in certain abnormal conditions.

Section 2 provides general information concerning venous catheterization. It presents the equipment and technique of venous catheterization as well as the interpretation of the information obtained by the procedure.

Section 3 presents the technique of angiocardiography and includes the presentation of a case of congenital heart disease with roentgenograms and other information obtained through this procedure.

Rapid Treatment of Acute Mania with Combined Coramine-Electroshock Technique

16 mm., sound, color, 20 minutes. (Available through the courtesy of Ciba Pharmaceutical Products, Inc.)

A case history is presented, depicting the rather rapid and dramatic improvement following the use of intravenous Coramine along with electroshock therapy. The film includes a discussion of the basis for use of this treatment, and also the limitations.

BOOKS RECEIVED IN JANUARY

A Vitamin Digest, Guy W. Clark, C. C. Thomas Company.

The 1952 Year Book of Drug Therapy, Harry Beckman (ed.), Year Book Publishers.

Gynecology, Diseases and Minor Surgery, Robert J. Lowrie (ed.), C. C. Thomas Company.

Visual Anatomy, Thorax and Abdomen, Sydney M. Friedman, C. C. Thomas Company.

Analgesia and Anesthesia in Obstetrics, J. P. Greenhill, C. C. Thomas Company.

Acute Renal Failure, John T. MacLean, C. C. Thomas Company.

Transactions of the Fifth American Congress on Obstetrics and Gynecology, George W. Kosmak (ed.), C. V. Mosby Company.

The Handbook of Texas, vols. 1 and 2, Texas State Historical Association, Walter Prescott Webb and H. Bailey Carroll (eds.), The Lakeside Press.

Atlas of Medical Mycology, Emma Sadler Moss and Albert Louis McQuown, Williams and Wilkins Company.

A Century of Medicine, 1848-1948, The History of the Medical Society of the State of Pennsylvania, Howard Kistler Petry (ed.).

BOOK NOTICES

Early Care of the Seriously Wounded Man

HENRY K. BEECHER, M. D., *Henry I. Dorr Professor of Research in Anesthesia, Harvard University; Chief, Department of Anesthesia, the Massachusetts General Hospital, Boston. Paper, 32 pages. 75 cents. Springfield, Ill., Charles C. Thomas, 1952.*

[1]Nutrition and Climatic Stress

H. H. MITCHELL, *Professor of Animal Nutrition, University of Illinois;* MARJORIE EDMAN, *Research Assistant in Animal Nutrition in Charge of Literature Survey, University of Illinois. 234 pages. $6.75. Springfield, Ill., Charles C. Thomas, 1952.*

This interesting monograph was prepared originally under a contract between the Union of Illinois and the Quartermaster Food and Container Institute for the Armed Forces. It is a complete review of the literature up to October 1, 1949, on the subjects of diet in a cold environment, diet in a hot environment, and diet at altitude. At the end of each chapter is a short summary of the material covered.

Anyone interested in nutrition, and certainly that includes all doctors who practice medicine, would profit by reading this short monograph.

A Practical Handbook of Midwifery and Gynaecology

W. F. T. HAULTAIN, O.B.E., M. C., B. A., *Hon. Consulting Obstetrician and Gynecologist, Royal Infirmary, Edinburgh, and Gynaecologist, Leith Hospital. Fabrikoid, 412 pages. $6. Edinburgh and London, E. and S. Livingstone, Ltd., 1952.*

[2]Human Embryology

W. J. HAMILTON, M. D., D. Sc., F.R.S.E., *Professor of Anatomy, University of London at Charing Cross Hospital Medical School;* J. D. BOYD, M. A., M. Sc., M. D., *Professor of Anatomy, University of Cambridge, and Fellow of Clare College, Cambridge; and* H. W. MOSSMAN, M. S., Ph. D., *Associate Professor of Anatomy, University of Wisconsin. Second edition. 432 pages. $9. Baltimore, The Williams and Wilkins Company, 1952.*

The traditions of both English and American workers are seen in the joint authorship, in the selection of material and in the emphasis on phylogenetic interpretations in this interesting and readable text. Unity has been improved by more active cooperation than was possible during the war years. The increase of 60 pages is largely due to more illustration and is justified by the more complete story pictured. Illustrations were good in the first edition but in this one have been treated to deeper etching to enhance three-dimensional effects. Judicious use of color adds to interpretive value and attractiveness.

Embryogenesis is adequately and clearly presented. The experimental material on development, dealing largely with early stages and lower vertebrates, is so difficult for elementary students that it wisely has been segregated. The same may be said for the comparative study of gastrulation and placental formation; both are available in final chapters.

In general, organogenesis is well presented. Histogenesis is hardly touched. The story of heart and arches is complete. The discussion of the nervous system is more complete than first year medical students can handle unless a course in neuroanatomy precedes it. However, an unusually good course in vertebrate anatomy might be sufficient. I was impressed with the schematic pictures of muscle extension and migration. On the other hand, the development of liver and pancreas is not well pictured although the description is good.

Some recent work on congenital anomalies is omitted as well as general theories in this field. Genetic factors are given proper emphasis. The basic data underlying most common anomalies are found throughout the text and are not treated separately. This maintains a good perspective and avoids a lopsided interest easily acquired.

The book can be unreservedly recommended to fully prepared medical students and to physicians reviewing any phase of embryology.

[3]The Principles and Methods of Physical Diagnosis

SIMON S. LEOPOLD, M. D., *Associate Professor of Clinical Medicine, School of Medicine and Graduate School of Medicine, University of Pennsylvania; Director of the Teaching of Physical Diagnosis, School of Medicine; Chief of the Thoracic Clinic, Hospital of the University of Pennsylvania; with a chapter on "Sounds from the Thorax: Acoustic Principles," by* S. REID WARREN, JR., Sc. D. in E. E., *Professor of Electrical Engineering, the Moore School of Electrical Engineering, University of Pennsylvania. 430 pages. $7.50. Philadelphia, W. B. Saunders Company, 1952.*

In the preface the author mentions that the fundamental fault with most of the available textbooks on physical diagnosis is they devote too little attention to the underlying principles—the physics—of examination. These explanations are brought out in practically each chapter after considering various diseases in a systematic manner. The chapters pertaining to examination of the chest, physical signs in certain diseases of the lungs and pleura, and correlative data are examples of the excellent presentation of this material.

The abundance of illustrative charts, anatomic photographs, diagrams, reproduction of roentgenograms, photographs of pathologic lesions, and occasional photomicrographs are well chosen. These will be especially helpful to the second year medical student as they begin correlating the various physical signs with lesions he has studied in pathology lectures and laboratories.

One statement concerning thyroid malignancy will produce some comment. In chapter 3, "Examination of the Neck," it is stated that "Malignant tumors of the thyroid are characterized also by rapid progression of growth with increasing pressure symptoms and metastasis to the cervical lymph nodes, the lungs and the bones." The rapidity of growth applies to few cases of malignancy of the thyroid. Fortunately a larger percentage of the malignancies of the thyroid gland do not grow rapidly.

The chapter pertaining to the history is exceedingly brief. References include many textbooks and outstanding articles.

This well organized presentation of observations, explanations, and correlative data should prove helpful to the student beginning the study of physical diagnosis, as well as in later years.

Elementary Medical Statistics—The Principle of Quantitative Medicine

DONALD MAINLAND, M. B., Ch. B., D. Sc., F.R.S.E., F.R.S.C., *Professor of Medical Statistics, Division of Medical Statistics, Department of Preventive Medicine, New York University College of Medicine. 327 pages. $5. Philadelphia, W. B. Saunders Company, 1952.*

[4]Side Effects of Drugs

L. MEYLER, *Consulting Physician at Groningen (Netherlands). Translated by Ph. Vuijsje and W. Mulhall Corbet, Amsterdam. 268 pages. $5.50. Houston, Elsevier Publishing Company, 1952.*

This book covers the side effects of drugs extensively. All common drugs are included, and many medications that the practitioner rarely, if ever, uses are reviewed.

There is considerable information of value such as the relative toxicity of local anesthetics and the incidence of fatalities in urographic examination. Occasionally the author

[1]*Joe D. Nichols, M. D., Atlanta.*
[2]*John G. Sinclair, M. D., Galveston.*
[3]*John H. Childers, M. D., Galveston.*
[4]*E. V. Swift, M. D., Big Spring.*

mentions treatment; however, this work is devoted primarily to listing drug reactions.

Fever caused by the sulfonamides and other chemotherapeutic substances is discussed. The method of distinguishing between drug and bacterial fever is outlined.

Antihistaminic drugs are discussed and the author warns against prescribing them to drivers or flyers. He also mentions certain ones as the most narcotizing of the group.

This book does not inform whether a certain drug reaction is rare or common. For instance, the extremely common vomiting due to morphine and death due to aspirin are given about equal space; most practitioners will never see a death due to aspirin. For this reason the work is not nearly as valuable as it could have been if the author had listed the symptoms as extremely common, common, unusual, and rare. It does serve as an excellent guide for anyone desiring a list of practically all symptoms that could result from drug administration.

[5]Culdoscopy—A New Technic in Gynecologic and Obstetric Diagnosis

ALBERT DECKER, M. D., D.O.G., F.A.C.S., *Clinical Professor of Gynecology and Obstetrics, New York Polyclinic Medical School and Hospital; Associate Attending Physician in Gynecology and Obstetrics, New York Polyclinic Hospital; Attending Gynecologist, Knickerbocker Hospital, New York. 148 pages. $3.50. Philadelphia, W. B. Saunders Company, 1952.*

This book is well written and adequately reviews the procedure of culdoscopy for the trained gynecologist. It is a book which should be read in great detail by everyone specializing in gynecology; it is a book the general practitioner should read and become familiar with but which should be used as a future guide since the procedure as yet is not accepted generally throughout the specialty of gynecology.

"Culdoscopy" is well prepared and one can glean much knowledge from it for the specialist. There are many instances in which it might be of extreme value in the practice of the gynecologist. The acceptance of the use of culdoscopy probably will be slow in the profession, but as is true of all procedures, it should be slow since so many new procedures are being advocated in every specialty of medicine. Certainly the treatise is so well done that anyone desiring to attempt the procedure can acquire enough knowledge to accomplish it without too much difficulty.

Until such time as culdoscopy has become generally recognized by the profession and has been perfected more than at present, I feel that it is still a procedure for use in teaching institutions and large hospitals.

[6]Ambulatory Proctology

ALFRED J. CANTOR, M. D., *Proctologist, Kew Gardens General Hospital, Long Island; Formerly Assistant Attending Gastroenterologist, Queens General Hospital, and Assistant Adjunct Proctologist, Hospital for Joint Diseases, New York. Second edition. 563 pages. $10. New York, Paul B. Hoeber, Inc., Medical Book Department of Harper and Brothers, 1952.*

This is a good textbook of anorectal diseases. The diagnostic and therapeutic procedures are well described and well illustrated. An excellent discussion of preoperative and postoperative care is given. The operative procedures are standard and the surgeon following them can expect good results.

Dr. Cantor apparently performs many of the operative procedures in his office and allows his patients to return to their homes. His success in this ambulatory technique is based largely on his ability to perform clean, careful dissections, and his skillful use of long lasting oil soluble anesthetics. His excellent results with the latter are not always duplicated by all who have had experience with them.

As a text of standing diagnostic and therapeutic procedures, this book can be recommended to the general practitioner or general surgeon. If, however, the physician is interested in developing the ambulatory technique, I recommend he proceed with caution, especially on the more extensive operative procedures.

[7]Forensic Medicine

KEITH SIMPSON, M. D. (Lond.), *Reader in Forensic Medicine to the University of London. Second edition. Cloth, 344 pages. $4.50. London, Edward Arnold and Company; Baltimore, The Williams and Wilkins Company, 1952.*

This book is primarily for medical students, police and crime officials, and practitioners of the medical and legal professions as well as those of allied professions who need the well-written, well-photographed reference book about such everyday yet technical matters.

There are many excellent chapters on forensic medicine, including infanticide, abortion, sexual offenses, legal procedures for physicians, types of injuries and wounds, medicolegal autopsy and evidence, and insanity. The toxicology section contains material on war gases and old and recent poisons, excellent information on the physician's responsibility in suicide cases, and details about laws dealing with drugs, foods, and sundry medical topics.

One chapter on "Medical Ethics" illuminates infamous conduct on the part of physicians, the four "A's"—association with unqualified assistants, advertising, adultery, and abortion. It also expounds on negligence, malpractice, and professional secrecy.

In spite of the fact that this book is English, it is noteworthy that our legal and medical systems are parallel. The author is present head of Scotland Yard Medical Department and an active pathologist. Most of the material in the book comes from a wealth of actual experience and not just theory. The concise simple nature of the book is an added feature. Most volumes on this subject are voluminous and very detailed.

This book must be recommended as a valuable source in any medical library.

Ear, Nose and Throat Diseases

WILLIAM MCKENZIE, M. B., B. CHIR., F.R.C.S., *Surgeon, Royal National Throat, Nose and Ear Hospital; Surgeon, Ear, Nose and Throat Department, Prince of Wales Hospital, Tottenham. Fabrikoid, 136 pages. $2. Baltimore, Williams and Wilkins Company, 1952.*

[8]Post-Graduate Lectures on Orthopedic Diagnosis and Indications

ARTHUR STEINDLER, M. D., F.A.C.S., *Professor of Orthopedic Surgery, State University of Iowa, Iowa City. Volume 4. 312 pages. $9.75. Springfield, Ill., Charles C. Thomas, 1952.*

This volume of Dr. Steindler's postgraduate lectures on orthopedic diagnosis and indications covers arthritis and diseases of muscles, bursae, tendons, and fascia in a practical and interesting manner. It is easy reading, and in the consideration of treatment the author indicates procedures that have proved of value and those which have not.

The lecture on syphilis of bone and joint is very good.

[5]*William F. Guerriero, M. D., Dallas.*
[6]*C. P. Hardwicke, M. D., Austin.*
[7]*Herman Wing, M. D., Austin.*
[8]*Frank C. Hodges, M. D., Abilene.*

Section B on deficiency and degenerative diseases of the locomotor system is brief but covers the conditions of common interest from the standpoint of pathology, clinical manifestation, and treatment. The book will be of value and interest to general practitioners as well as orthopedists.

[9]Correlative Cardiology—An Integration of Cardiac Function and the Management of Cardiac Disease

CARL F. SHAFFER, M. D., F.A.C.P., *Associate Professor of Clinical Medicine, Baylor University College of Medicine; and* DON W. CHAPMAN, M. D., F.A.C.P., *Associate Professor of Medicine, Baylor University College of Medicine. 525 pages. $9.50. Philadelphia, W. B. Saunders Company, 1952.*

The book is entirely in outline form, with the whole field of cardiology covered in chapters on anatomy, physiology, electrocardiography, diagnostic methods, and diseases. Each chapter on disease is subdivided similarly into classifications such as pathology, physical signs, laboratory signs, and differential diagnosis. The 1, 2, 3 listings under treatment are probably too standardized; however, it may be of value for the student to have an outline of general regimen of treatment.

Separating the subject of electrocardiography into exact statements of what is normal and abnormal in many instances is misleading. An example of this is found under "T wave" in children: "Abnormal. (a) Relatively high voltage usually indicates congenital anomaly; (b) Relatively low voltage may indicate myocardial disease of rheumatic origin." From this statement it is difficult to know what voltage is normal, and if these criteria are used alone, many children will be falsely diagnosed to have heart disease. The student should supplement this section with additional reading.

The correlations of the various aspects of cardiovascular diseases in general is excellent, bringing together many separated facts of much help in understanding the various aspects of cardiology. Each section includes references to significant literature, most of which are excellently chosen and up to date. The book offers, in general, a quick reference especially suitable for the medical student.

Kitchen Strategy

LEONA M. BAYER, M. D., *Assistant Clinical Professor of Medicine, Stanford University School of Medicine, San Francisco, and* EDITH GREEN, *Television Cooking Expert, San Francisco. 112 pages. $3.75. Springfield, Ill., Charles C. Thomas, 1952.*

The aim of this handbook is to educate the modern mother on how to be a dietitian, tactician, economist, hostess, juggler, and chef.

[10]Rare Manifestations of Metabolic Bone Disease

I. SNAPPER, M. D., Ph. D., *Physician and Director of Medical Education, Mount Sinai Hospital; Clinical Professor of Medicine, Columbia University College of Physicians and Surgeons, New York. A Monograph in American Lectures in Metabolism. Publication 107, American Lecture Series. 96 pages. $3. Springfield, Ill., Charles C. Thomas, 1952.*

In this interesting and readable brochure Dr. Snapper has attempted to review the physiologic changes normally occurring in bone metabolism and to demonstrate how interference with this normal process produces the bony changes seen in certain disorders. He has correlated and explained why seemingly unrelated disorders may be characterized by similar changes in skeletal appearance.

Dr. Snapper by oversimplification has created a better understanding of metabolic bone diseases than would have been possible had he discussed more fully the theoretical and controversial aspects of these disorders.

Modern Drug Encyclopedia and Therapeutic Index

Edited by MARION E. HOWARD, M. D., F.A.C.P., *Associate Clinical Professor, Department of Internal Medicine, Yale University School of Medicine; Associate Physician, Grace-New Haven Community Hospital and the Department of University Health, Yale University, New Haven. Fifth edition. 1,431 pages. $12. New York, Drug Publication, Inc., 1952.*

The fifth edition of this encyclopedia carries up-to-date references on approximately 4,000 ethical drugs (including about 1,500 new listings) of some 175 manufacturers. With each drug listed there also appears a self-pronouncing guide published for the first time in this edition of the encyclopedia. This publication is desirable for the physician, nurse, hospital drug room, and college of pharmacy.

[11]Physical Medicine in General Practice

Edited by WILLIAM BIERMAN, M. D., *and* SIDNEY LICHT, M. D. *Third edition. 798 pages. $12.50. New York, Paul B. Hoeber, Inc., Medical Book Department of Harper and Brothers, 1952.*

This third edition of "Physical Medicine in General Practice" was published five years after the second, and because of the remarkable progress in this field, Dr. Bierman asked Dr. Licht to collaborate on the revision. Many other authors also have contributed.

The edition is organized, as were the previous two, in two parts, one on procedures and the other on clinical applications. New chapters or sections such as new techniques and procedures in ultrasound and microwave diathermy, neuromuscular reeducation, functional muscle testing, manipulation, and the care of the amputee have been added. Important progress in therapy is reflected in new sections on such conditions as anterior poliomyelitis and arthritis.

The new chapter on ultrasound therapy is of particular interest. Most of the bibliography dates back only four or five years. In many respects this form of physical energy more closely approaches long wave than short wave diathermy. Ultrasound therapy had its beginnings in European centers. It has been applied to almost every disease of almost every organ in an attempt to discover its indications, although many of the first reports of great success probably will not stand the scrutiny of more careful trial.

Ultrasound treatment is having a great vogue on the European continent and since it will probably enjoy a trial period in this country for some time, a fuller discussion of some of its attributes is presented in this chapter. The author states that comparison of patients treated in this way with similar groups of control cases treated by conventional therapeutic agents revealed that ultrasonic therapy has a pain-relieving effect statistically equal to the analgesic effect of other physical agents such as infrared radiation and diathermy. There is no specific effect of ultrasound treatment. Several years were required for short wave diathermy to achieve its proper place in the field of physical agents and a similar period will be required to evaluate the therapeutic and diagnostic possibilities of ultrasound therapy.

The chapter on functional muscle testing is particularly worth while to any general practitioner desiring to do this work because of the excellent charts for analysis of muscle imbalance and the table of muscle testing, which are extremely detailed and amply illustrated.

In the chapter on manipulation and massage, the possibilities, as well as the limitations, are explained. Unfortunately,

[9]*E. E. Eddleman, M. D., Birmingham, Ala., formerly of Dallas.*
[10]*Clifford Thorne, M. D., Austin.*
[11]*Neil Buie, M. D., Austin.*

most medical doctors are deficient in this aspect of physical medicine.

New material has been added to the chapters on anterior poliomyelitis and neuromuscular reeducation for paralysis.

Chapter 2 of this book, entitled "Clinical Application," should be particularly studied by the general practitioner to be sure that he is not overlooking the use of many practical and worth-while, yet relatively inexpensive, physical therapeutic measures. As is the case in many other fields of medicine, the general practitioner is the doctor who can make the greatest use of physical medicine.

Textbook of Medicine

Edited by SIR JOHN CONYBEARE, K.B.E., M. C., D. M. (Oxon.), F.R.C.P., *Physician to Guy's Hospital, London, and* W. N. MANN, M. D. (Lond.), F.R.C.P., *Assistant Physician to Guy's Hospital, London. Tenth edition. Fabrikoid, 912 pages. $8. Baltimore, The Williams and Wilkins Company, 1952.*

A Translation of Galen's Hygiene

ROBERT MONTRAVILLE GREEN, M. D., *Emeritus Professor of Anatomy, Harvard Medical School, Boston. 277 pages. $5.75. Springfield, Ill., Charles C. Thomas, 1951.*

The Low Fat Diet Cook Book

DOROTHY MYERS HILDRETH, *Consultant Dietitian, University of Pennsylvania Robinette Foundation, Heart Clinic; and* EUGENE A. HILDRETH, M. D.; *with an introduction by* FRANCIS C. WOOD, M. D., *Chief of the Medical Clinic of the Hospital of the University of Pennsylvania. 136 pages. $2.95. New York, Medical Research Press, 1952.*

Extensive research has indicated that a high level of cholesterol in the blood is responsible for atherosclerosis, which is the most painful and dangerous form of the circulatory diseases of advancing age. It has been shown that by cutting down animal and vegetable fats in the diet, the cholesterol content of the blood may be reduced and controlled. The low fat diet thus makes possible the prevention and treatment of atherosclerosis.

A few of the high points of this book are as follows: planning and following a low fat diet; preparing more than 200 savory dishes such as low fat roasts, fish, poultry, gravies, dressings, desserts, salads, sandwiches, and sauces; adjusting the low fat diet to lose or gain weight; calculating the fat content of basic foods in preparing one's favorite dishes; and planning menus for an entire week of delicious low fat meals.

Standard Nomenclature of Diseases and Operations

RICHARD J. PLUNKETT, M. D., *Editor; and* ADALINE C. HAYDEN, R.R.L., *Associate Editor. Fourth edition. 1,034 pages. $8. Published for American Medical Association by Blakiston Company, Philadelphia, 1952.*

As a result of a decision made at the Fifth National Conference on Medical Nomenclature, held under the direction of the American Medical Association in June, 1948, the revision and publication of this fourth edition was carried out.

Several thousand changes which included additions, deletions, and corrections were made to cover needed changes concerning newer scientific concepts and advances since the last publication in 1942.

Approximately 70 per cent of the hospitals in the United States use this publication. Changes in this revision, which represent changes in diagnostic terminology over the past ten years, enable the hospitals to keep up with current scientific thinking.

Pardon My Sneeze

MILTON MILLMAN, M. D., *Fellow, American Academy of Allergists; Member, American Academy of Allergy. 217 pages. San Diego, Frye and Smith, Ltd., 1952.*

Dr. Millman has divided his book into three parts. The first one discusses the question of what is allergy, and the detection, diagnosis, and treatment of food allergies. Hay fever, eczema of infants, and skin allergies are discussed in the second part. The last section of this book is devoted to recipes and menus for the patient with various types of allergies.

Vocational Services for Psychiatric Clinic Patients

THOMAS A. C. RENNIE, M. D., *Cornell University Medical College and the New York Hospital, and* MARY F. BOZEMAN, *Rehabilitation Project, National Association for Mental Health. A Commonwealth Fund Book. 100 pages. $1.25. Cambridge, Harvard University Press, 1952.*

Publication from the Division of Surgery

Northwestern University Medical School, Chicago, vol. 16, 1951-1952.

Medical Neuropathology

I. MARK SCHEINKER, M. D., *Assistant Professor of Neuropathology and Assistant Professor of Neurology, University of Cincinnati College of Medicine; with a foreword by* MARION A. BLANKENHORN, M. D., *Professor of Medicine, University of Cincinnati College of Medicine. 372 pages. $10. Springfield, Ill., Charles C. Thomas, 1951.*

Medical Milestones

HENRY J. L. MARRIOTT, M. D.; *Foreword by* SIR ALEXANDER FLEMING. *293 pages. $3.50. Baltimore, Williams and Wilkins Company, 1952.*

One of the main objectives of this book is to inform the nonmedical public of the truth about the achievements of the medical profession. Written in a manner that the laity can easily understand, this book deals with the modern era of the antibiotic drugs; the new treatments for anemia; advances in heart surgery for "blue babies"; the antithyroid drugs; the relation of hormones and cancer; treatment of leprosy and the attitude of the public toward the leper; animal factors in the blood; cortisone and ACTH as aids in rheumatism therapy; the story of malaria; and the use of Dramamine in treatment of motion sickness.

"Medical Milestones" is a good, solid, well-balanced summary which the doctor may well recommend to his patients and friends, and one that will be desired by the doctor himself for his own bookshelves.

[12]Bone Tumors

LOUIS LICHTENSTEIN, M. D., *Senior Pathologist, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles; Consultant in Bone Tumors, Tumor Registry of the California Medical Association Cancer Commission. 315 pages. $10.50. St. Louis, C. V. Mosby Company, 1952.*

This is an excellent discussion of bone tumors which includes a résumé of studies carried out by the author with Dr. Henry Jaffe and heretofore available only in current periodicals.

It includes an up-to-date classification of bone tumors with description of each, including various newer entities which have been recently described. The illustrations are of the highest quality. It is recommended for physicians interested in tumors of the bone.

[12]*Lawrence L. Griffin, M. D., Austin.*

[13]Malaria, Basic Principles Briefly Stated

PAUL F. RUSSELL, M. D., M.P.H., *Division of Medicine and Public Health, The Rockefeller Foundation; Consultant to Surgeon General, U. S. Army; Malaria Consultant to Tennessee Valley Authority and the United States Public Health Service. Publication 126, American Lecture Series. 210 pages. $7.75. Springfield, Ill., Charles C. Thomas, 1952.*

This small volume, beautifully printed and illustrated, covers admirably the basic principles of malaria. All the statements are authoritative and to the point. The clinical course and newer therapy of vivax malaria, falciparum malaria, quartan malaria, and oval malaria are up to date. The transmission of malaria by Anopheles, the life cycle of Plasmodia in the mosquito, and the biology of insect vectors are outlined and discussed. The epidemiology and control of malaria including various methods of destroying mosquitoes are masterfully presented and illustrated.

This accurate and valuable volume is an excellent reference book to clinicians and laboratory workers in protozoology, entomology, parasitology, and epidemiology.

[14]Yellow Fever in Galveston

ASHBEL SMITH, M. D., A. M., *Ex-Surgeon General of the Texian Army; with a Biographical Sketch by* CHAUNCEY D. LEAKE, Ph. D. *135 pages. $2.50. Austin, University of Texas Press, 1951.*

This book rewards its reader with more than the title promises. In addition to Dr. Smith's account of the yellow fever epidemic of 1839 in Galveston, there is a delightful biographical sketch of Ashbel Smith by Chauncey Leake and a reprint of the late Dr. Josiah C. Trent's *The Men Who Conquered Yellow Fever.*

Ashbel Smith's monograph reminds us of the superior art of observation and description of those days which seems to have been lost in our contemporary stereotyped manner of case presentation. His account conveys the drama of a pestilence-ridden city. His case reports are so vivid that one reads the outcome with the concern that is held by a physician for his own patients. The therapeutic efforts are appalling but make the reader wonder if his own treatment will seem any more rational to physicians one hundred years hence.

Dr. Leake's story of the first great medical educator of Texas reveals what an amazing number of things an industrious man can accomplish in a lifetime.

The men who conquered yellow fever were, according to Josiah Trent, Rush, Crawford, Nott, Beauperthuy, Finley, Sternberg, Reed, Carroll, Agramonte, Lezear, Gorgas, Stokes, Noguchi, and the nurse martyr, Clara Maass. The thumbnail biographies of these personalities and their contributions are worth the price of the book.

[15]Diagnostic and Experimental Methods in Tuberculosis

HENRY STUART WILLIS, M. A., M. D., F.A.C.P., *Superintendent and Medical Director, North Carolina Sanatoria, McCain, N. C.; Consultant, U. S. Public Health Service; and* MARTIN MARC CUMMINGS, M. D., F.C.C.P., *Director, Tuberculosis Research Laboratory, Lawson Veterans Administration Hospital, Veterans Administration, Chamblee, Ga. Second edition. 373 pages. $10. Springfield, Ill., Charles C. Thomas, 1952.*

This book will appeal primarily to the laboratory technician and to the research worker in tuberculosis. Physicians serving in tuberculosis institutions should be familiar with it and the volume should be included in medical reference libraries. In the preface the authors express the hope "that it will help fill a long felt need for adequate and representative, if not encyclopedic, information on the essential features of the laboratory approach to tuberculosis." This hope is fulfilled in the sections on the tubercle bacillus and ways of its detection and cultivation.

The section dealing with the use of tuberculin, BCG vaccine, suppressive drugs, and the methods in detecting and reporting drug resistant strains should be of interest to the practitioner, public health worker, and medical student. An encouraging note relative to chemotherapy may be suggested that even though this second edition is printed in 1952, there is no reference to the latest suppressive drug—isonicotinic acid hydrazide.

Those interested in animal inoculation and experimental tuberculosis in animals will derive much benefit from the sections dealing with these subjects and with the preparation and staining of tissues.

The discussions of allergy and immunity are of additional interest to the clinicians.

An extensive bibliography accompanies the text.

Cortone—A Handbook of Therapy

Prepared and Published by Merck and Company, Ltd., Rahway, N. J., 129 pages.

The aim of this handbook is to aid in the everyday practice of medicine. The information therein concerns the use of cortisone based on the clinical experiences of authoritative sources.

[13]*A. Packchanian, M. S., Ph. D., Professor of Bacteriology and Parasitology, University of Texas Medical Branch, Galveston.*
[14]*W. W. Moorman, M. D., Fort Worth.*
[15]*Edward A. Wilkerson, M. D., Houston.*

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION

FILM ON FAMILY DOCTOR AVAILABLE

Sixteen millimeter prints of the RKO-Pathe film "Your Doctor" are now available for showing to schools, service clubs, civic groups, industrial plants, and special professional meetings. The American Medical Association also has made arrangements to obtain prints for state and county society film libraries. Societies interested in purchasing a print at cost may write to the Public Relations Department of the American Medical Association, 535 North Dearborn, Chicago 10. The film portrays the work of 35 year old Dr. George Bond in his valley clinic in backwoods North Carolina.

EXHIBIT CATALOG AVAILABLE

The Bureau of Exhibits of the American Medical Association has prepared a new catalog which carries pictures of twenty-five health exhibits with brief descriptions, installation data, and shipping weights. County and state societies wishing to display health exhibits at meetings and local fairs may secure exhibits on a loan basis from the Bureau, 535 North Dearborn, Chicago 10.

TEXAS MEDICAL ASSOCIATION

Second Telephone Broadcast on Poliomyelitis

"Poliomyelitis—Evaluation of Present Status" will be discussed by a panel of five physicians on March 10 when the Council on Medical Education and Hospitals of the Association presents the second in the 1953 series of postgraduate telephone programs for the physicians of Texas.

Taking part in the informal panel discussion on poliomyelitis will be Drs. J. M. Coleman, Austin, moderator; Theodore C. Panos, University of Texas Medical Branch, Galveston; M. H. Morris, San Antonio; Jack R. Hild, Houston; and William A. Spencer, Houston. Dr. Morris specializes in orthopedics; other members of the panel are pediatricians.

Approximately forty county medical societies have made arrangements to participate in the program.

The remaining two programs in the series will be broadcast October 13 and November 10.

EXECUTIVE COUNCIL REVIEW

More than one hundred physicians and representatives from the Woman's Auxiliary were present for the meeting of the Executive Council of the Texas Medical Association and other meetings held in conjunction with it in Austin on January 17 and 18, despite an epidemic of influenza and a blizzard which promised to curtail attendance.

January 17 was filled with a variety of committee and council meetings and an afternoon conference arranged primarily for county medical society presidents and secretaries by the Committee on Public Relations. Leo Brown, Chicago, director of the Public Relations Department of the American Medical Association, and Malcolm Lamborne, Jr., Washington, assistant editor of publications at the A.M.A.'s Washington office, were featured speakers.

The semiannual meeting of the Executive Council was called to order January 18 by the President, Dr. T. C. Terrell, Fort Worth, and reports from representative Association committees were presented.

The Board of Trustees reported the employment of a trained medical librarian, the purchase of additional office equipment, completion of the headquarters building, arrangements to amortize the debt on the building from membership dues within about five and one-half years although the mortgage need not be paid in less than twenty years, and arrangements with the University of Texas Press to publish the history of the Texas Medical Association written by Dr. P. I. Nixon of San Antonio.

The Council on Medical Jurisprudence stated its position with respect to certain measures to be placed before the Fifty-Third Legislature. It recommended approval of revisions in the Medical Practice Act to strengthen its enforcement, a bill sponsored by the Private Hospitals and Clinics Association to provide funds through local taxes for the care of the medically indigent, and another bill sponsored by the Texas Hospital Association and Private Hospitals and Clinics Association amending the Hospital Lien Act of 1933 to increase the protection afforded hospitals in cases of accident in which the patient obtains judgment against or makes a settlement with the person alleged to be liable for the accident. The Council also recommended establishment of liaison between physicians and insurance underwriters to mediate some of the problems relating to choice of physician in accident cases.

Relationship of the Association to health and accident insurance companies also was discussed in the report of the Council on Medical Economics, which pointed out some of the areas of friction and the difficulties inherent in attempting to solve them.

The Committee on Rural Health and the Committee on Doctor Distribution called attention to a recent survey of the physicians of Texas relating to the distribution of doctors and the availability of medical service in the state, the tabulations on which were incomplete but promised to provide heretofore unavailable data of considerable importance. The Committee on Rural Health recommended that the results of the survey be made known to the Rural Health Council.

The Committee on Blood Banks suggested the establishment of more medically directed, private blood banks in the larger communities of the state with a central clearing house for the more efficient distribution of blood.

A standing committee of the Association to deal with matters of interest to the medical and legal professions was recommended by the special Committee on Liaison with the Texas Bar Association, which also suggested a program of internal education to encourage more and better medical testimony when that seems desirable and also to review cases in which the use of medical testimony seems questionable.

Plans for the 1953 annual session were outlined by the Council on Scientific Work, which also asked approval of a revised program schedule to be instituted at the 1954 annual session.

Mrs. Robert F. Thompson, El Paso, President of the Woman's Auxiliary, announced a gift through the Auxiliary of $1,000 for the Memorial Library fund. The contribution came from Mrs. Dorothy Ray Lewis, sister of Mrs. S. F. Harrington, Dallas, chairman of the Auxiliary's Library Fund Committee, in memory of their father, G. A. Ray.

Related Groups To Meet During Annual Session

In conjunction with the Association's 1953 annual session April 28 through 29 in Houston, plans for meetings of related specialty societies, alumni banquets, fraternity socials, and special luncheon sessions—functions which offer added opportunity for fellowship, exchange of ideas, and entertainment—are nearing completion.

The Shamrock Hotel, official headquarters for the 1953 session, also will be the scene of most of these activities. Related specialty societies which have scheduled meetings for Monday, April 27, are the Conference of City and County Health Officers; Texas Chapter, American College of Chest Physicians; Texas Heart Association; Texas Neuropsychiatric Association; Texas Orthopedic Association; Texas Railway and Traumatic Surgical Society; Texas Society of Anesthesiologists; and Texas Society of Gastroenterologists and Proctologists. The Texas Air-Medics Association and the Texas Dermatological Society meet on Sunday and Monday, April 26 and 27, and the Texas Diabetes Association will meet Sunday. In addition, the Texas Chapter, American Physical Therapy Association will meet Saturday and Sunday, April 25 and 26; and the Society of Life Insurance Medical Directors of Texas will meet Tuesday, April 28.

To date, several out-of-state physicians tentatively have accepted invitations to take part in specialty society meetings. They include Dr. Howard F. Root, Boston, Texas Diabetes Association; Dr. Stewart Wolf, Oklahoma City, Texas Neuropsychiatric Association; Dr. Edward B. Tuohy, La Canada, Calif., Texas Society of Anesthesiologists; and Dr. James E. Thompson, New York, Texas Society of Gastroenterologists and Proctologists. Complete programs will appear in the March JOURNAL.

The annual Past Presidents' Association luncheon will be held at noon Monday, April 27, while Fifty Year Club members will meet for breakfast Tuesday morning, April 28.

Alumni banquets and fraternity socials will be held on the evenings of Monday, April 27, and Tuesday, April 28, respectively.

Physicians and Auxiliary members planning to attend the annual session and desiring hotel accommodations are urged by officials to make reservations as soon as possible. In the event that the Shamrock Hotel cannot confirm a reservation, it will arrange through the local hotel association to make suitable substitute accommodations. A deposit of $10 should accompany requests for reservations.

COUNTY SOCIETIES

Angelina County Society

January 10, 1953

(Reported by B. H. Denman, President)

New officers of the Angelina County Medical Society were honored at the society's annual banquet held in San Angelo on January 10. The officers are Byford H. Denman, president; Gail Medford, vice-president; and Dan Spivey, secretary-treasurer.

Musical entertainment was presented by Albina Torres of Houston, concert pianist, and his trio. Dr. Denman was chairman of arrangements, and serving on the entertainment committee were Dr. and Mrs. Jack Wade and Dr. and Mrs. Dan Spivey. Dr. and Mrs. Peyton R. Denman of Houston were guests. More than forty persons attended.

Baylor-Knox-Haskell Counties Society

December 17, 1952

The regular monthly meeting of Baylor-Knox-Haskell Counties Medical Society was held December 17 in Munday. Officers for 1953 were chosen. They include Ben Bowden, Munday, president; Temple Williams, Haskell, vice-president; and R. L. Newsom, Munday, secretary-treasurer.

J. M. Hooks of Abilene was guest speaker at the meeting.

Brazos-Robertson Counties Society

November, 1952

Aeromedical Aspects of Military Aviation—Capt. Hubert E. Wuestoff, Bryan Air Force Base.

Members of the Brazos-Robertson Counties Medical Society met at the Bryan Air Force Base in November when base physicians and technicians demonstrated and lectured on the aspects of aviation medicine. Lt. Col. Lewis H. Oden, Jr., hospital commander, presided and Capt. Wuestoff spoke on the above named topic. Capt. Tracy W. Worley, Jr. and Capt. Leonard S. Evans gave a demonstration in the altitude chamber of the protective equipment used by pilots at high altitudes.

Ellis County Society

December 10, 1952

Gerald J. Kochevar, Midlothian, was elected president of Ellis County Medical Society at the society's December meeting. Edmund F. Baker of Ennis was chosen vice-president, while William P. Ball, Jr., Waxahachie, was reelected to serve as secretary-treasurer.

Falls County Society

December, 1952

Examination of the Colon by Roentgen Ray—Herman C. Sehested, Fort Worth.

The annual election of officers was conducted at the December meeting of the Falls County Medical Society, which was held in Marlin. New officers include Jerome C. Hohf, president; Roy G. Giles, vice-president; and James S. Bussell, secretary-treasurer.

Joseph C. Gallagher was elected to serve a three-year term on the board of censors; Clarence R. Miller and Milton A. Davidson are other members of the board. All officers are from Marlin.

Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Society

November 18, 1952

(Reported by Malcolm Wyatt, Secretary)

Breast Pathology—T. P. Churchill, Amarillo, and Joseph Mossberger, Amarillo.

The above outlined program was presented at the November 18 meeting of the Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Medical Society held in Borger. Hugh A. Pennal, Borger, introduced the program.

A committee composed of Malcolm H. Wyatt, Frank W. Kelley, and M. McDaniel, all of Pampa, was named to make arrangements for the Christmas party to be held in Pampa.

Grayson County Society

December 9, 1952

At the regular monthly meeting held December 9 in Denison, Grayson County Medical Society officers for 1953 were elected. They are Vernon L. Tuck, Sherman, president; Paul L. Pierce, Denison, vice-president; W. Doak Blassingame, Denison, secretary-treasurer; Robert W. Duncan, Denison, delegate; John D. Gleckler, Denison, alternate delegate; and Frank M. Sporer, Van Alstyne, censor.

Hale-Floyd-Briscoe-Swisher Counties Society

December 9, 1952

Dorothy C. Long, Plainview, was elected president of Hale-Floyd-Briscoe-Swisher Counties Society at a regular monthly meeting held December 9 at Plainview. Other officers for 1953 are W. J. Mangold, Lockney, vice-president; Gilmer B. Johnson, Jr., Plainview, secretary-treasurer; and Marvin C. Schlecte, Plainview, delegate. John H. Hansen, Plainview, was named to the board of censors.

Hays-Blanco Counties Society

December 18, 1952

(Reported by J. R. de Steiguer, Secretary)

Officers for 1953 of the Hays-Blanco Counties Medical Society who were elected at the December 18 meeting included Stanley F. M. Dolch, San Marcos, president; J. R. de Steiguer, San Marcos, secretary-treasurer; M. D. Heatly, San Marcos, delegate; and T. C. McCormick, Buda, alternate delegate. Named to serve as censors were M. C. Williams, W. L. Moore, and C. W. Scheib, all of San Marcos.

Lamb-Bailey-Hockley-Cochran Counties Society

November 25, 1952

Lamb-Bailey-Hockley-Cochran Counties Medical Society met in regular session November 25 in Littlefield to elect officers for 1953. William C. Nowlin, Littlefield, was elected president; Glen Davis, Littlefield, vice-president; Raymond A. Reid, Levelland, secretary-treasurer; and George V. Edgar, Levelland, delegate.

Lubbock-Crosby Counties Society

January 6, 1953

(Reported by Wallace I. Hess, Secretary)

Recent Advances in Cardiovascular Disease—William H. Gordon, Lubbock.

Discussion—W. C. Snow, O. B. Hull, Grady M. Wallace, and Frank G. Goodwin, Lubbock.

The Lubbock-Crosby Counties Medical Society met January 6 in Lubbock for the regular monthly meeting. Wallace I. Hess, president, made appointments to the blood bank, public health, tuberculosis, program, public relations,

civil defense, procurement, and grievance committees and to the board of censors.

Dr. Hess indicated goals to be attained during the year including use of the blood bank and consolidation of the program of the Post Graduate School of Medicine, establishment of a medical reading room for society members in the proposed new library, adoption of the telephone emergency service, and the publication of a physicians' telephone directory.

Marie L. Shaw, chairman of the blood bank committee, was elected for a term of two years to continue the position to which she was appointed previously.

Committees for the forthcoming meeting of the Third District Society were named by A. G. Barsh. These committee members included Mina D. Watkins, A. Lee Hewitt, and John B. Rountree, entertainment; S. C. Arnett and Clifford E. Payne, hotel; and Emerson M. Blake and Harvey Hayes, registration.

Navarro County Society

December 1, 1952

New officers of the Navarro County Medical Society were named at a meeting December 1 in Corsicana. S. H. Burnett is president of the society for 1953; W. W. Carter is vice-president; and Paul H. Mitchell is secretary-treasurer. All reside in Corsicana.

Orange County Society

December 2, 1952

David Bennett was reelected president of the Orange County Medical Society at a meeting December 2 in Orange. Oliver Seastrunk was chosen vice-president, and E. C. Pretz secretary-treasurer.

Palo Pinto-Parker Counties Society

December 9, 1952

Uses and Abuses of the Electrocardiograph—Lloyd Gilliland, Fort Worth.

Guest speaker at the December 9 supper-meeting of Palo Pinto-Parker Counties Medical Society held at the Baker Hotel in Mineral Wells was Lloyd Gilliland of Fort Worth, who spoke on the above named topic.

During the business session, James D. McCall, Mineral Wells, was elected president; Jack Eidson, Weatherford, vice-president; William O'Quin, Mineral Wells, secretary-treasurer; E. F. Yeager, Mineral Wells, delegate; and E. M. Russell, Weatherford, censor. Other members of the board of censors who will serve in 1953 are A. M. Patterson of Mineral Wells and John L. Roan of Lipan.

Potter County Society

January 12, 1953

(Reported by William J. Campbell, Secretary)

Estate Taxes—Mr. S. E. Hail, Amarillo.

Mr. Hail, senior trust officer of the Amarillo National Bank, spoke to members of the Potter County Medical Society at the meeting held in Amarillo on January 12. Mr. Hail urged physicians to reexamine their wills to protect their estates from ruinous taxes.

At the business meeting the applications for membership of Harry R. Staley and Norman L. Claybourn were accepted and James L. Johnson was welcomed back after two years service in the armed forces. Attention of the society members was called to the payment of 1953 dues in the State Association.

Reports from the committee on tuberculosis and the civil defense committee were heard. Approximately thirty-five members and a guest, Edmund N. Walsh, Fort Worth, were present.

Reeves-Ward-Winkler-Loving-Culberson-Hudspeth Counties Society

November, 1952

Orthopedics of the Back and Cause of Low Back Pains—Louis W. Breck, El Paso.

The above named paper was presented at the meeting of the Reeves-Ward-Winkler-Loving-Culberson-Hudspeth Counties Medical Society held in Kermit in November.

During the society's meeting, members of the Woman's Auxiliary met. County society members and auxiliary members from Kermit, Pecos, and Monahans attended.

San Patricio-Aransas-Refugio Counties Society

December 3, 1952

Prostatitis—A. J. Ashmore, Corpus Christi.

The regular bi-monthly meeting and annual election of officers of the San Patricio-Aransas-Refugio Counties Medical Society was held in Refugio December 3. Hosts for the meeting were T. C. Meitzen and E. P. Zarsky.

Elected to office were Claude A. Selby, Sinton, president; James L. Pierce, Jr., Sinton, president-elect; H. A. Miller, Refugio, vice-president; M. C. Rittiman, Sinton, secretary-treasurer; J. H. Finn, Refugio, delegate; and Y. S. Jenkins, Taft, alternate delegate. On the board of censors are Dr. Meitzen, Refugio; L. G. Wood, Rockport; and A. H. Voss, Odem.

The scientific program consisted of a discussion on prostatitis by Dr. Ashmore, as outlined above.

Taylor-Jones Counties Society

November 11, 1952

(Reported by Lee Williamson, Secretary)

Donald H. McDonald, Abilene, was elected president of the Taylor-Jones Counties Medical Society at a meeting held November 11. Other officers for 1953 named by the society include Edwin E. Middleton, Abilene, vice-president, and Carroll E. Murtha, Abilene, secretary-treasurer.

Tom Green-Eight County Society

December 1, 1952

Gordon F. Madding assumed the presidency of the Tom Green-Eight County Medical Society at the society's annual dinner meeting at the St. Angelus Hotel in San Angelo. Other members holding official positions in the society for 1953 are Joe L. Cornelison, vice-president; T. Gabe Coleman, secretary-treasurer; W. Lacey Smith, W. D. Anderson, and Lloyd Hershberger, censors; Henry Ricci, delegate; and Gordon Pilmer, alternate delegate.

Guests at the meeting were wives of the members and druggists and their wives.

Walker-Madison-Trinity Counties Society

December 9, 1952

Members of the Walker-Madison-Trinity Counties Medical Society met December 9 and elected officers for 1953. Those named to office include Mac Woodward, Huntsville, president; James Elmer Reed, Madisonville, vice-president; and Roger D. Shoemaker, Trinity, secretary-treasurer.

Webb-Zapata-Jim Hogg Counties Society

December 2, 1952

(Reported by H. L. Warres, Secretary)

At the December 2 meeting of Webb-Zapata-Jim Hogg Counties Medical Society all of the 1952 officers were unanimously reelected to serve again during 1953. These include Albert C. King, president; M. E. Malakoff, vice-president; Herbert L. Warres, secretary-treasurer; and J. L. Crawford, John T. Lowry, and Ruby S. Lowry, board of censors. All are from Laredo.

Wharton-Jackson-Matagorda-Fort Bend Counties Society

November 18, 1952

(Reported by Lorraine I. Stengl, Secretary)

Physical Medicine and Rehabilitation—Ben L. Boynton and Harry C. Leavitt, Houston.

Bay City was the scene of the November 18 meeting of the Wharton-Jackson-Matagorda-Fort Bend Counties Medical Society. Members were notified of the death of Dr. Green L. Davidson of Wharton, and it was announced that the society is contributing in his honor to the Texas Memorial Medical Library Association. Thirty-three persons viewed a motion picture and heard the discussion presented by the two guest speakers whose names and topic are given above.

January 13, 1953

(Reported by Lorraine I. Stengl, Secretary)

Use of Cortone and Triethylene Melamine (TEM) in Treatment of Leukemia and Similar Disorders—Robert Hettig, Houston.

At the January meeting of the Wharton-Jackson-Matagorda-Fort Bend Counties Medical Society the above outlined program was presented. The meeting was held in East Bernard at the home of J. Dan Schuhmann with more than thirty members of the society and auxiliary present. The application for membership of B. D. Arbuckle, El Campo, was approved.

Wichita County Society

November, 1952

Physical Medicine—Lt. Col. J. N. Schaeffer, Sheppard Air Force Base.

George Seibold, Wichita Falls, was named president of the Wichita County Medical Society at the November meeting of the society.

Other officers elected were James T. Lee, vice-president and president-elect; and Frank Browne, secretary-treasurer. R. L. Daily was named to the board of censors. All officers reside in Wichita Falls. The above outlined program was presented.

AUXILIARY SECTION

TEXAN ON SOUTHERN MEDICAL AUXILIARY BOARD

Mrs. Robert F. Thompson, El Paso, President of the Woman's Auxiliary to the Texas Medical Association, was installed as parliamentarian of the Woman's Auxiliary to the Southern Medical Association at a meeting in Miami, Fla., recently. Mrs. Thompson will serve on the executive board.

COUNTY AUXILIARIES

Navarro County Auxiliary

Fifty-three members and guests were present to honor Dr. J. M. Travis, "General Practitioner of the Year," when the Woman's Auxiliary to the Navarro County Medical Society complimented their husbands with a dinner in Corsicana on January 9.

Dr. Travis paid tribute to the doctors' wives and emphasized the continuing need for the doctor in general practice. Dr. Travis was accompanied to Corsicana by his wife.

Also on the program was Mrs. R. T. Travis of Jacksonville, "Today's Health" chairman for the Auxiliary to the Southern Medical Association. She urged everyone to encourage the laity's interest in *Today's Health.*

Dr. and Mrs. Truman C. Terrell of Fort Worth were guests at the dinner. Dr. Terrell stressed the importance of doctors being good citizens and cautioned that the threat of socialized medicine is still present. Mrs. Terrell, Public Relations Chairman for the Woman's Auxiliary, mentioned the AAPS Essay Contest and pointed out that the high school students of today are the voters of tomorrow and they must be alerted concerning the dangers of socialized medicine.—Mrs. C. L. Gary, Jr., President.

Officers of the Woman's Auxiliary to the Texas Medical Association: President, Mrs. Robert F. Thompson, El Paso; President-Elect, Mrs. E. W. Coyle, San Antonio; First Vice-President (Organization), Mrs. R. T. Travis, Jacksonville; Second Vice-President (Physical Examinations), Mrs. Troy A. Shafer, Harlingen; Third Vice-President (Today's Health), Mrs. P. R. Jeter, Childress; Fourth Vice-President (Program), Mrs. John D. Gleckler, Denison; Recording Secretary, Mrs. Carlos R. Hamilton, Houston; Treasurer, Mrs. Oscar Marchman, Jr., Dallas; Corresponding Secretary, Mrs. Newton F. Walker, El Paso; Publicity Secretary, Mrs. A. H. Neighbors, Sr., Austin; Parliamentarian, Mrs. Joe D. Nichols, Atlanta.

Taylor-Jones Counties Auxiliary

November 4, 1952

"The Doctor Wears Three Faces" by Mary Bard was reviewed by Mrs. Bro Mingus at the luncheon meeting of the Taylor-Jones Counties Auxiliary held in Abilene on November 4.

Mrs. John Gilmore, program chairman, introduced Mrs. Mingus. The luncheon committee consisted of Mesdames Frank Hodges, C. A. McFadden, J. P. Bridges, T. B. Bass, W. B. Adamson, S. W. Hollis, and T. Wade Hedrick. Mrs. Travis Smith, president, conducted the business session.—Mrs. W. B. Adamson, Corresponding Secretary.

Travis County Auxiliary

Members of the Woman's Auxiliary to the Travis County Medical Society honored their husbands with a party at the home of Dr. and Mrs. Truman Morris in Austin December 15.

A program of Christmas carols was sung by a group from the Austin High School Glee Club under the direction of Miss Emma Virginia Decherd.

On the hostess committee were Mrs. James W. Eckhardt and Mrs. Ben Eppright, chairmen; Mesdames Palmer Woodson, James H. Herrod, R. Allwyn Cooper, T. J. McElhenney, John Crockett, T. D. McCrummen, Carey Legett, Ben DuBilier, Joe W. Bailey, Virgil S. Rabb, Jerome Ravel, Philip T. Flynn, Sam Wilborn, Albert A. LaLonde, W. S. Sharpe, W. S. Brumage, and Joe T. Gilbert.

Wichita County Auxiliary

Mrs. Emile Maltry, Jr. reviewed Thomas B. Costain's "The Silver Chalice" at a recent meeting of the Woman's Auxiliary to the Wichita County Medical Society held in Wichita Falls.

William Triggs, Wichita Falls, rendered a program of vocal selections accompanied by Mrs. Triggs. The hostess committee was composed of Mesdames John H. Arrington, chairman; B. W. Dorbandt, J. A. Johnson, Jack E. Maxfield, D. E. Fletcher, I. L. Humphrey, M. W. Caskey, J. A. Heymann, Austin F. Leach, F. R. Collard, George T. Singleton, and C. R. Bates.

DEATHS

E. C. BLACKWELL

Dr. Edward C. Blackwell, Gorman, Texas, died October 28, 1952, at his home in Gorman, as a result of cancer of the lungs.

Dr. Blackwell was born in Eastland County on October 25, 1891, the son of Edward and Rancie Blackwell. He attended public school and Hankins College at Gorman and in 1912 received his medical degree from the Chicago College of Medicine and Surgery, Chicago. Dr. Blackwell first practiced medicine at Sipe Springs, remaining there three years. He moved to Gorman in 1916 and continued to practice in that vicinity throughout his medical career. He and his brother, Dr. George T. Blackwell, in 1922 established the Blackwell Hospital in Gorman, now known as the Blackwell, Rodgers and Brogdon Sanitarium and Clinic, in which Dr. Blackwell was a partner until his death. During World War I he served for sixteen months in the Army Medical Corps.

Dr. Blackwell was a member of the American Medical Association and the Texas Medical Association through Eastland-Callahan-Stephens-Shackelford-Throckmorton Counties Medical Society. He also held membership in the Masonic Lodge and the Chamber of Commerce, and had served on the Gorman School Board and as a trustee of the Gorman Methodist Church.

He was married to the former Miss Bessie Brogdon of Romney on October 12, 1913. She died October 19, 1951. Dr. Blackwell is survived by a foster son, Edward Harrison of Gorman; four brothers, Dr. George T. Blackwell, Gorman; Almus Blackwell, D.D.S., Stamford; Albert Blackwell, Lubbock; and Arthur Blackwell, Oklahoma City; and one sister, Mrs. Belle Harrison, Gorman.

A. O. SCARBOROUGH

Dr. Alonzo Orrin Scarborough, Snyder, Texas, died October 7, 1952, at his home. He had been in ill health for several months.

Dr. Scarborough, the son of Captain Andrew Jackson and Emily Sophronia (Stell) Scarborough, was born in DeWitt County on November 27, 1860. He attended public schools in Texas and the old Kentucky School of Medicine at Louisville, Ky., where he received his doctor of medicine degree in 1889. Dr. Scarborough also studied at Missouri Medical College, St. Louis; New York Polyclinic School and Hospital, New York City; Mayo Clinic, Rochester, Minn.; and University of Southern California School of Medicine, Los Angeles.

He began practicing medicine at Snyder in 1886 and continued to practice there most of his medical career, with the exception of the time he practiced at Denton in 1894, Abilene from 1907 through 1908, Fresno, Calif. in 1918, Long Beach, Calif. in 1924, and Mineral Wells from 1944 through 1946. Dr. Scarborough opened the Scarborough Sanitarium at Snyder in 1909 and continued to operate it until 1914. During that time he was also chief surgeon for the Roscoe, Snyder, and Pacific Railroad.

Dr. Scarborough previously was a member of the American Medical Association and the Texas Medical Association through the Taylor-Jones and Scurry-Dickens-Kent-Garza-Borden-King-Stonewall Counties Medical Societies. He had served as president of Taylor-Jones Counties Society. Dr. Scarborough was a member of the Baptist Church, the Masonic Lodge, and Knights Templar. He wrote as a hobby and in 1940 published a book entitled "Following a Doctor's Satchel."

Dr. Scarborough is survived by his wife, the former Miss Nannie Goodwin, whom he married October 26, 1886. He is survived also by a son, Hugh J. Scarborough, Snyder; two daughters, Mrs. Guy E. Paxton, Laredo; and Mrs. Roland A. Irving, Fort Worth; and one sister, Mrs. Irene S. Boren, Long Beach, Calif.

W. H. BRUDER

Dr. Wood Harlan Bruder, Houston, Texas, died November 13, 1952, at Katy.

Born in Houston on February 5, 1901, Dr. Bruder was the son of Julius and Lela (Strahan) Bruder. He attended public schools and Heights High School in Houston, from which he was graduated in 1921. He studied at the University of Pittsburgh, Pittsburgh, Pa., and Washington and Lee University, Lexington, Va., and received a bachelor of science degree from West Virginia University, Morgantown, W. Va. Dr. Bruder was graduated in 1932 with a doctor of medicine degree from the University of Louisville School of Medicine, Louisville, Ky. He interned at Ohio Valley General Hospital in Wheeling, W. Va.

DR. WOOD H. BRUDER

Dr. Bruder, who was a general practitioner, first practiced medicine for seven months at Morgantown. He moved to Houston in 1934 and continued to practice in Houston until his death.

A member of the American Medical Association and the Texas Medical Association through Harris County Medical Society, Dr. Bruder was a member also of the American Academy of General Practice, Phi Beta Pi medical fraternity, Phi Gamma Delta social fraternity, the Optimist Club,

An obituary ordinarily will not be published more than four months after date of death. Cooperation in reporting deaths of physicians and in furnishing appropriate biographical material promptly is solicited.

the Houston Council for Mentally Retarded Children, and the Episcopal Church.

Dr. Bruder was captain of the 1920 Heights High School football team which shared a state championship with Corsicana. He also played football while in college and had played both professional football and baseball.

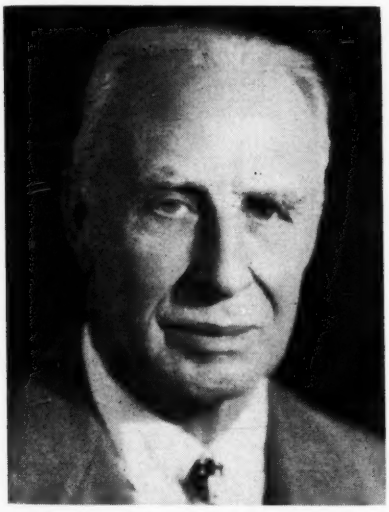
Dr. Bruder married the former Miss Harriette C. Edmondson on May 19, 1926 at Morgantown. She survives him, along with three sons, Richard Harlan Bruder, Mylie Wood Bruder, and Harry Edward Bruder; two daughters, Mrs. George Eagle, Jr., and Patricia Marie Bruder; four sisters, Mesdames E. A. Yates, J. G. Moore, W. H. Waghalter, and B. H. Porter; and one brother, W. E. Bruder, all of Houston. Another daughter, Virginia, also died November 13, 1952, at Katy.

D. RICHARDSON

Dr. Dalton Richardson, Austin, Texas, died January 15, 1953, in an Austin hospital.

Dr. Richardson was born June 27, 1868, in Nicholsville, Ohio, the son of Dr. John Porter and Elizabeth (Purkiser) Richardson. He attended public schools in Cincinnati and later was graduated with a bachelor of science degree from National Normal College, Lebanon, Ohio. After receiving his doctor of medicine degree in 1894 from what was then the Medical College of Ohio, Cincinnati, Dr. Richardson served a preceptorship under his physician-grandfather and interned at a hospital in Cincinnati.

Following the death of his grandfather, Dr. Richardson went into practice with his father. The outbreak of World War I in 1914 found him doing postgraduate work at St. George's Hospital in London. During the war he worked



DR. DALTON RICHARDSON

as a civilian physician with the British Royal Army Medical Corps. While in England, he also was associated in private practice with Sir James McKinsey Davidson, said to be the first physician to do steroscopic roentgen-ray work. At the conclusion of World War I, Dr. Richardson returned to the United States and established a practice in radiology in Austin, which he continued until the time of his retirement from active practice in 1950.

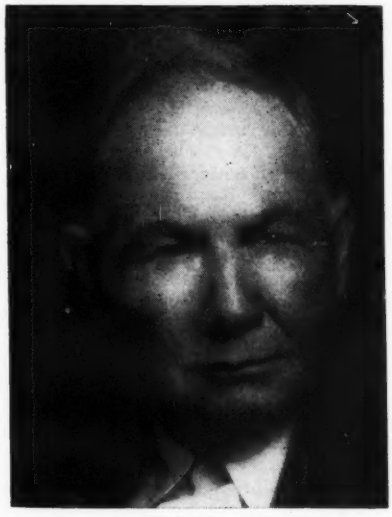
Dr. Richardson was a member of the American Medical Association and the Texas Medical Association through Travis County Medical Society. He had served as secretary and president of his county society; president of the Seventh District Medical Society; and chairman of the Section on Radiology and Physiotherapy for the 1927 annual session of the Association. In addition, Dr. Richardson was a member and at one time president of the Texas Radiological Society. He was a fellow of the Royal Society of Medicine of England, a fellow emeritus of the American College of Radiology; and a member emeritus of the Radiological Society of North America. Dr. Richardson was a member of the Rotary Club of Austin, serving as president of that group in 1936, and of Town and Gown.

In 1912 in London, England, Dr. Richardson married the former Miss Margaret Buckner, who survives him.

J. A. BIRDWELL

Dr. Joseph Allen Birdwell, Overton, Texas, died on October 28, 1952, at his home of cerebral thrombosis.

Born April 23, 1860, at Mount Enterprise, Texas, Dr. Birdwell was the son of John C. and Adeline (Cunningham) Birdwell. He attended Rock Hill Institute, Minden, Texas, and Louisville Medical College, Louisville, Ky., re-



DR. J. A. BIRDWELL

ceiving a diploma in obstetrics and diseases of women in 1890 and his doctor of medicine degree in 1891. Dr. Birdwell did postgraduate work in obstetrics, gynecology, and surgery at New Orleans Polyclinic in 1896. He lived in Norfolk, Neches, and London, Texas, before moving in 1900 to Overton, where he practiced medicine until his retirement a few years ago.

Dr. Birdwell was a member of the Texas Medical Association through the Rusk County Medical Society, which he served as president in 1938. He was elected to honorary membership in the State Association in 1949. Dr. Birdwell held membership in the American Medical Association, the Texas Railway and Traumatic Surgical Association, the Masonic Lodge, the Knights of Pythias, and the Methodist Church.

Dr. Birdwell was married in Nacogdoches on March 21, 1892. Mrs. Birdwell died in 1950. Dr. Birdwell is survived by three sons, Glenn D. Birdwell, Richmond; Leroy Birdwell, Philadelphia; and Dr. J. W. Birdwell, Tyler; and four daughters, Mrs. V. A. Hartsfield, Houston; Mrs. C. H. Summers, San Antonio; Mrs. George H. Wood, Jacksonville, Fla.; and Mrs. Glen Moon, Overton.